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# CONTENTS
## İçindekiler

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# Teacher Empowerment*: School Administrators' Roles*[1]

Aydin BALYER[2] Kenan OZCAN[3] Ali YILDIZ[4]

| A R T I C L E   I N F O | A B S T R A C T |
|---|---|
| | **Purpose**: Teacher empowerment involves investing teachers with the right to participate in the determination of school goals and policies as informed by their professional judgment. By empowering teachers, teachers can discover their potential and limitations for themselves as well as developing competence in their professional development. This makes teacher empowerment a crucial issue. The primary aim of this research is to determine school administrators' roles in empowering the teachers at their schools.<br><br>**Research Method:** In this study, the researcher used a qualitative research design. The data were analyzed in accordance with the content analysis method. The researcher interviewed 20 teachers through over the course of this study. The researcher chose the respondents according to the purposive sampling method. |

**Results:** The results reveal that administrators have empowered these teachers by providing opportunites for shared decision-making, improving their status, making schools more attractive places, building relationships on principles of trust and creating good communication among teachers. However, administrators do not adequately support their professional development, develop their self-efficacy, support their autonomy or employ them in some managerial roles.

**Implications for Research and Practice**: One main conclusion arising from the research is that administrators empower teachers by providing shared decision-making, improving their status, making schools more attractive places, building relationships depending on trust and creating good communication among teachers. However, administrators do not support their professional development adequately, develop their self-efficacy, support their autonomy or employ them in some managerial roles.

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[2] Corresponding Author: Yıldız Technical University, TURKEY e-mail: balyer2001@gmail.com,
**ORCID**: http://orcid.org/0000-0003-1784-2522.
[3] Adıyaman University, TURKEY, e-Mail: kozcan04@hotmail.com,
**ORCID:** http://orcid.org/0000-0002-2106-0972.
[4] Yıldız Technical University, TURKEY e-Mail: aceyildiz@gmail.com,
**ORCID**: http://orcid.org/0000-0003-3033-917.

## Introduction

Teachers' collective efforts are believed to have a direct influence on better student performance. This makes teachers' work critical both for schools and inherently for society. In this regard, Crum, Sherman and Myran (2009) emphasis that rising demands for student success have changed the role of administrators regarding teacher empowerment. For this reason, Bogler and Nir (2012) claim that empowering teachers and building a supportive environment at a school is believed to be a viable solution to problems related to educational effectiveness. Therefore, teacher empowerment draws a lot of attention in the field of teacher education.

### *Teacher Empowerment*

According to Bogler and Nir (2012), empowerment suggests real changes in one's professional expertise, rising autonomy, and involvement in decision making processes. Similarly, Bolin (1989) emphasizes that empowerment is participating in decisions about school goals and practicing these decisions in the educational field. Kimwarey, Chirure and Omondi (2014) assert that an empowered individual has the skills and knowledge to act or improve in a positive way. Through teacher empowerment, teachers develop their own competence and self-discover their potential and limitations.

With regard to education, teacher empowerment has correlations to motivation and provides teachers with knowledge about themselves and their colleagues in order to foster student achievement collaboratively (Dee, Henkin, & Duemer, 2002). According to Bogler and Somech (2004), there is a correlation between teacher empowerment and student success. Additionally, Hatcher (2005) proposed that teacher empowerment is the opportunity to exercise teacher leadership by creating a non-hierarchical network of collaborative learning.

Moreover, Kirby, Wilmperberg and Keaster (1992) emphasize that teacher empowerment is influenced by teacher quality, their background, personality, and expectations and the implemented programs at a school. Also, Irwin (1991) indicates that empowered educators believe in themselves and their abilities, understand the system, dedicate time and energy to their work and respect others.

In many studies, teacher empowerment is proved to be related to many different management strategies such as facilitative administration, making decisions, control and leadership. In this study, teacher empowerment falls into seven prescribed areas.

### *Teacher Empowerment through Providing Decision Making*

Klecker and Loadman (1998) highlight the fact that decision-making includes teachers' involvement in educational decisions such as financial issues, choosing teachers, determining programs, and measuring student success. Short and Greer (1997) claim that decision making should be exercised more carefully and that teachers' participation areas should be well defined. Hence, Short (1994) states that providing teachers' full-participation in critical decisions impacts their quality of work. By doing so, their voice is heard in many areas related to their work.

With teacher empowerment, it is often purposed to increase teachers' decision-making authority and accountability in their fields. Furthermore, when teachers participate in making decisions, their problem-solving ability improves, and the entire school benefits from it, resulting in a feeling of stronger commitment to the overall organization (Dee, Henkin & Duermer, 2002; Devos, Tuytens, & Hulpia, 2014, Moran, 2015). Therefore, delegating decision-making tasks to teachers is a major element of teacher empowerment. However, schools should have certain and well-explained rules regarding teacher participation in order to avoid its becoming a privilege for just a few teachers.

*Teacher Empowerment through Providing Opportunities for their Professional Growth*

According to Klecker and Loadman (1998) professional development refers to facilities that schools provide for teachers to increase their professional assets in an uninterrupted fashion, especially in terms of their teaching skills. They can develop their skills and learn more about the work via these professional development activities. In this respect, administrators can enhance teachers' effectiveness by supporting their professional development efforts (Short & Greer, 1997; Thomas & Velthouse, 1990). By empowering teachers via these kinds of developmental activities, administrators can create more teacher leaders. They can also can prevent teachers' stress as well as identifying their needs and offering professional learning experience as administrators (NCCTQ, 2007).

*Teacher Empowerment through Improving their Status*

Teachers' status affects how they perceive themselves both at the school and in the community as well as their ability to teach. It also refers to their perceptions of having professional respect from other teachers at school with regard to their knowledge and expertise (Klecker & Loadman, 1998; Short, 1994).

Maeroff (1988) claims that teachers want to be treated like professionals. In this way, they retain control over their own teaching practices. Therefore, according to Rinehart, Short, Short and Eckley (1986), administrators should support or facilitate their teachers' work by empowering their status.

*Teacher Empowerment through Developing their Self-efficacy*

When teachers feel competent about their abilities, it affects student learning in a positive way. Empowering teachers is believed to influence their feeling of competency. This refers to teachers' perceptions of their knowledge, skills and talents for helping their students and establishing good programs for their students (Klecker & Loadman, 1998). In this regard, school administrators can empower teachers by offering simple compliments and recognizing student achievement, which in turn rewards the teachers who made the student achievement possible (Kimwarey, Chirure, & Omondi, 2014).

### Teacher Empowerment through Supporting their Autonomy

Teachers' autonomy is their sense of freedom to make their own decisions about timing, programs, books and instructional planning (Klecker & Loadman, 1998). According to Short (1994) teachers' work control allows them to make their own decisions and take more risks. In this manner, Short and Greer (1997) claim that creating a supportive environment can build teachers' sense of autonomy.

Teachers who are more autonomous want to implement original ideas during their teaching practices, take risks, assist students, and develop skills. In this regard, creating opportunities for teachers to become more involved with new initiatives and responsibilities develops teacher autonomy. Furthermore, Dee, Henkin, and Duemer (2002) emphasize that empowerment can become a determinant of organizational commitment. It is also believed to lower teacher burnout increase.

### Teacher Empowerment through Improving Social Attractiveness, Trustworthiness and Communication

Empowerment is a significant predictor of interpersonal-level trust (Goyne, Padgett, Rowicki & Triplitt, 1999). Therefore, another way to empower teachers is to create an atmosphere consisting of social attractiveness, trustworthiness and communication at school. According to Moye, Henkin and Egley (2005), because effective communication skills are crucial in a school setting, administrators must focus on establishing trusting relationships and improving meaningful communication in order to empower teachers and develop an environment of collaborative leadership.

### Teacher Empowerment through Employing Them as Assistant Principals

Teachers who have some leadership roles may develop their work skills as well (Gerke, 2004; Kimwarey, Chirure, & Omondi, 2014). Moreover, Bartholomew, Melendez-Delaney, Orta, and White (2005) discuss that employing teachers in some managerial positions, such as assistant principals or coordinators, can empower them. While performing these roles, teachers can develop their leadership and administrative capacities, which may result in a better climate of student discipline. Such empowerment practices may also allow principals to assist teachers with instructional practice.

### Purpose and Significance of the Research

Through teacher empowerment, schools expand the quality of educational results. For this reason, it is important to research school administrators' roles in the teacher empowerment process. Thus, the primary objective of this research is to determine school administrators' roles in empowering teachers. Conducting such a study seeks to supply recommendations for decision-makers and senior administrators.

## Method

*Research Design*

This qualitative study aims to analyze school administrators' roles in teacher empowerment by providing decision making opportunities, providing professional development, improving teachers' status, developing teachers' self-efficacy, improving teachers' autonomy, creating social attractiveness, trustworthiness and communication and employing teachers in some administrative positions. The main objective of qualitative studies is to  provide in-depth knowledge in any topic.

The main aim of using qualitative research procedures is to describe, analyze, and interpret a group's common design of behaviors, beliefs, and language (Creswell, 2002; Denzin & Lincoln, 2005; Marshall & Rossman, 2006). In a similar way, Creswell (2008) indicated that qualitative research requires the development of questions, procedures and the data obtained from the respondents around common themes. In this regard, the researcher made interpretations of the data gathered. By employing this research pattern and using interviews, the research found common behaviors, beliefs, and language shared among teachers.

*Survey Group*

In this study, the researcher interviewed 20 teachers who work in Istanbul. The research was conducted during the 2015–2016 school year. The researcher chose the working group with a maximum variation sampling method, which permits the researcher to select a small number of respondents. This method also extends the diversity of the respondents' opinions about the main theme.

**Table 1**

*The Academics' Demographics*

| Age | n | Gender | n | Total Experience | n | Experience at School | n | Education | n |
|-----|---|--------|---|------------------|---|----------------------|---|-----------|---|
| 25–35 | 2 | Male | 11 | 1–5 years | 9 | 1–5 years | 18 | Graduate | 17 |
| 36–46 | 9 | Female | 9 | 6–10 years | 4 | 6–10 years | 1 | Masters | 3 |
| 47–57 | 7 | | | 11–15 years | 5 | 11–15 years | | PhD | |
| 58+ | 2 | | | 16–20 years | | 16–20 years | 1 | | |
| | | | | 21 + | 2 | 21 + | | | |
| Total | 20 | | 20 | | 20 | | 20 | | 20 |

*Data Collection and Analysis*

In this research, the researcher collected the data with a constructed semi-structured interview method. Under this method, respondents can express their views frankly.

The researchers obtained the data in accordance with the following procedure: First, they informed the teachers the aim of the research. The teachers were invited to take part in the research voluntarily after consenting to the confidentiality of the data. They consented to keep their identities secret. They were also informed that their names would not be shared with anyone else. Second, the interviews were planned for a particular day, and they were interviewed accordingly. The researcher recorded the interviews with their permission, and each interview lasted about 45–60 minutes.

In this research, the data were analyzed using the content analysis technique, which is based on analyzing similar data on a topic and commenting on it (Mayring, 2000). The data analysis process requires certain procedures to be followed. First of all, the researcher listened to each recording to make certain the data was correct. In this regard, the respondents' interview transcripts were examined according to the required procedures. These procedures are the development of coding categories, mechanical sorting of the data, and analysis of the data within each coding category. Here, the researchers coded every respondent's interview independently according to their opinions about school administrators' roles in teacher empowerment.

The researchers grouped emerging themes and repeated themes into coding categories in three steps defined as category definition, exemplification, and codification regulation. In this process, first, the researchers separated the answers into meaningful categories, named, and coded. Here, the researchers conceptualized the questions and named them with seven different statements such as decision making, teacher professional development, improving teachers' status, developing teachers' self-efficacy, developing teachers' autonomy, providing social attractiveness, trustworthiness and communication and empowering them in some administrative positions. Secondly, the researcher identified common themes among the aforementioned topics. Third, the researchers tried to avoid repetition. Finally, the researchers explained the results as they relate to each other. The researchers also proposed a cause-and-effect relationship among the independent components. The researchers coded the respondents' opinions as T1, T2, T3, T4, etc.

In the data organization and analysis process, the researcher used the constant comparative approach, which involves the saturation of categories and the emergence of theory (Bogdan & Biklen, 1998; Glaser, 1992). Through this method, the researcher reviewed the collected data around some key issues and recurrent events or activities. Moreover, the researchers reviewed each participant's data several times for confirmatory and contradictory statements.

*Trusthworthiness and Rigor*

In order to provide the validity and reliability of the research, the researchers took some precautions. First of all, the interviewer just facilitated the interview and listened the respondents without directing them. Second, the researchers made it possible for six field experts to review the interview questions. After taking their feedback on the questions, the latest interview forms were developed in accordance with this expert feedback. Moreover, each interviewed subject was promised complete confidentiality. The researcher carried out the interviews outside of the schools in order to avoid power relations.

Furthermore, in order to foster the internal validity of the research, the researchers reviewed the related literature to create a contextual framework for developing the interview form. In this regard, member checking was performed. Additionally, respondents could explain their views frankly and honestly since their identities were kept confidential. Second, for the purposes of expanding the external validity of the research, the research process— the research design, study group, data collection and analysis—was described in detail. Third, in order to ensure internal reliability, the researcher recorded all of the data without interpretation.

Furthermore, the researchers included another field expert and faculty member who has experience on qualitative research to code the data gathered from the teachers in addition to their own coding. Then they compared that data analysis to calculate the consistency. As a result of this comparison, they found 94% consistency between their coding and the expert's coding (Miles & Huberman, 1994). Finally, in order to provide external reliability, they described the research process in detail. The researchers have preserved the raw data and coded data for other researchers who wish to examine them.

On the other hand, this research has also several limitations. In the first place, the respondents were comprised of volunteers, and they do not represent other teachers in the educational system. As the data were obtained from a limited group, caution should be exercised while inferring results. Then, the researchers were the main instrument of the data analysis process, and the analyses and results are a product of their interpretation and perspective. Therefore, another researcher may reach different results with the same data sets (Bogdan & Biklen, 1998; Creswell, 2002).

## Results

This study aimed to determine school administrators' roles in teacher empowerment in terms of providing decision making and teacher professional development, improving teachers' status and self-efficacy, teachers' autonomy, social attractiveness, trustworthiness and communication and employing them in some administrative positions.

*Teacher Empowerment through Providing Shared Decision Making Opportunities*

In this regard, most teachers (n=12) indicate that their administrators seek their opinions, which makes them feel content. The administrators usually implement the decisions made in the teachers' meetings, but they sometimes make decisions on their own without asking the teachers' opinions for quick decisions. Moreover, while doing SWOT analysis, the administrators often ask for teachers' opinions because it is not possible to implement the decisions taken without asking them. However, some teachers reported that (n=8) their administrators do not ask for their teachers' opinions while making decisions. To make matters worse, the administrators sometimes pretend to ask for teachers' opinions. A young teacher said, "*In fact, making decisions together is the best way. Otherwise, teachers do not naturalize these decisions and many problems arise. They rarely ask our opinions (T 5)*".

*Teacher Empowerment through Improving Teachers' Status*

Teachers' status refers to their perceptions of having professional respect and admiration from their colleagues concerning their expertise. In this regard, most teachers claim that (n=11) school administrators try to improve teachers' status by defending teachers when they have problems with parents. Some teachers emphasize that it should be the government's policy to improve teachers' status rather than school administrators. In this respect, they expect the government to value teachers more. A teacher says, "*I work at a private school and parental pressure creates stress on us. [ . . . ](…..). However, our administrators defend and support us (T9).*" In general, teachers are positive about this aspect of empowerment, and they add that the Ministry of National Education (MoNE) should improve teachers' status in Turkish society both financially and socially. Financial worries and feeling of burnout overwhelm good efforts.

On the other hand, some teachers (n=9) are negative regarding improvements in teachers' status stating that their administrators do not support and improve their status sufficiently. This is especially true as far as problems with senior management are concerned; the administrators do not stand on their side. Similarly, the administrators sometimes undermine their status with their disrespectful behaviors. The teachers assert that the student-centered system affected teacher status poorly. They are humiliated by the administrators, parents and senior management. A teacher said, "*I want to be valued. Simply, I make my own tea and wash my own cup. When I leave my cup on the table, I am insulted. This makes me feel valueless (T11).*"

*Teacher Empowerment through Improving Social Attractiveness, Trustworthiness and Communication*

Trustworthiness and trust are based on positive expectations of a person's actions. In this manner, most teachers report that (n=14) school principals have made efforts to make schools more attractive places, build relationships dependent on trust and create good communication among teachers. Most teachers are positive about it, adding that the administrators solve their problems they encounter directly without reflecting on them. What is more, the administrators organize social activities to create better communication, improve trust and social attractiveness at school. Some teachers from

a private school state, "*Our administrators can be reached easily. They give us two pay-checks as promotion, provide private insurance. Therefore, communication is good (T9/T2).*

On the other hand, some teachers believe (n=6) that their administrators are young and inexperienced, so they make so many mistakes. Although they try to meet teachers' demands to build a better organizational culture, they are not successful. Teachers think that an administrator cannot do anything about it. They indicate that trust must be the government policy. The administrators do not trust teachers. Two teachers claim, "*Instead of creating an atmosphere dependent on trust, they create more conflicts among us (T4/ T12).* Another teacher says "*The teaching profession has lost its attractiveness, and most teachers do this job because they do not have any other alternatives. Teachers are not satisfied (T14)*".

### Teacher Empowerment through Providing for their Professional Growth

Professional development efforts are essential for improving teachers' skills. In this regard, findings show that most teachers (n=13) negatively view their administrators' attempts to empower teachers through professional growth. They claim that their administrators do not support their professional growth efforts. The administrators usually do not approve teachers' attendance at professional development facilities during the school term, and they tend to encorage them in summer time. A teacher says, "*Senior management looks as if they support, but officially it is not regulated. It is up to the principal's personal favor (T 4).*" One teacher states, "*Our principal blames us [for falling] behind the schedule when we attend these programs (T 7).*" Another teacher reports, "*Our principals supports in-service trainings, but they think that post graduate studies are unnecessary (T 11).*"

On the other hand, some teachers (n=7) believe that young administrators in particular provide for and support their professional development efforts. In this respect, they say, "*Our administrators support our developmental efforts completely. They changed our program according to our master's program, and they financially support us (T 9/T 6/T 2/T 13).*

### Teacher Empowerment through Developing Their Self-efficacy

Concerning teacher empowerment through developing their self-efficacy, most teachers (n=13) have negative perceptions about it. Although their administrators encourage them to participate in some courses and in-service trainings, the same administrators do not let them use school buildings when teachers provide some developmental programs. They believed that being a teacher is enough, and there is no need to do anything more. Some say strikingly, "*Our administrators are not competent as principals, so they cannot help us. We want them to tell us our deficiencies and tell parents to trust their teachers (T1/T4)*". A teacher says, "*In-service trainings are not up to date and far from our real needs. Only better-organized trainings can develop our self-efficacy (T14)*".

However, some teachers believe that (n=7) their administrators develop teachers' self-efficacy by addressing teachers' deficiencies. They also add that the administrators develop their self-efficacy by organizing in-service trainings, presentations, social

activities and motivational facilities with care. A young teacher states, *"Our administrator always gives me positive feedback, avoiding my negative behaviors, which develops my self-efficacy (T10).*

*Teacher Empowerment through Supporting Teachers' Autonomy*

Considering teacher autonomy, most teachers (n=10) claimed that their autonomy is not supported adequately. Even though teachers' autonomy should be supported to increase school effectiveness, the current school system does not allow teachers to do in their classes. The teachers indicate that although the administrators do not intervene in in-class activities, they feel that they have no autonomy in their work. The participants also add that the MoNE determines their limits with rules and regulations considering teachers to be civil servants with certain working schedules in the current system. A teacher claims, *"I wanted to take my students to museums for my history class, but the principal did not let us go. Another time I wanted to take my students to a battle field, but the result was the same (T11)."* A teacher, *"We do too much office work, which is not related to our field (T16)".*

However, some teachers believe (n=8) that school administrators support their autonomy. They indicate that the administrators let them behave freely during their classes. Here, they claim, *"They do not intervene my classes, teaching methods, testing and class materials, and we are supported (T3/T2/T5/10)".* Meanwhile, some teachers (n=2) did not understand the term autonomy.

*Teacher Empowerment through Employing them as Assistant Principals*

When employing teachers in some managerial positions, most participants (n=16) think that their administrators do not empower them adequately. Although there are still vacant administrative positions, the administrators do no not let teachers apply for these positions. School administrators consider teachers as a threat for their positions. A teacher highlights the issue, *"As long as there is an interview to determine managerial positions, I do not think there will be justice. They prefer the ones who are politically close to them (T 13).*

However, a few teachers (n=4) state that their administrators empower them by employing them in some managerial positions. They give teachers some minor responsibilities to empower teachers. The participants also say that their administrators observe those who contribute to school work and give them a chance. Two teachers say, *"In some planning work, they give us some managerial roles to empower us, and they help those who want to be an administrator (T2/T11)".* Another teacher claims that, *"Teacher empowerment is basically the government's responsibility (T4)."*

## Discussion and Conclusion

When teacher empowerment through providing decision making is concerned, most teachers of this survey group indicate that their administrators take their recommendations into consideration, and teachers are content with the current situation. However, some teachers believe that administrators do not ask their opinions while making their decisions. In general, it is believed that school

administrators have a classical management approach while administering a school, but the situation is different here. This proves that school administrators trust teachers; therefore, they provide for their participation in decisions. Similarly, In'am (2015) found that teachers can be empowered by teacher's involvement in making decisions. Additionally, according to Kimwarey, Chirure, and Omondi (2014) teachers' problem solving abilities can be developed by participating in collaborative decision making processes.

As far as teacher empowerment through improving their status is concerned, most teachers claim that school administrators improve their status. They also believe that teachers' financial and career status in society should be strong as well. Teachers of this group feel weak both in society and at school, and they are in the need of continuing support from both society and school administration. Additionally, concerning the social attractiveness of the school, providing trustworthiness and communication, most teachers reports that school principals try to make schools more attractive places. They build relationships depending on trust and create good communication among teachers by solving any problems they encounter, organizing social activities, promotion and being easily accessible. Young administrators in particular try to meet teachers' demands, build good relationships with teachers and organize meetings outside the school. They also believe that administrators cannot do it alone because their roles are limited and it must be a government policy.

Regarding teachers' professional growth, except for a few teachers, most participants think that their administrators do not support them adequately. In fact, teachers need support while performing their work. Therefore, they should be supported by the school administration. Administrators may sometimes consider teachers' developmental efforts to be useless and a waste of time. In fact, the world is changing and so are their teaching approaches. In order to react to these changes, teachers should seek professional development. Their efforts to complete a masters degree and in-service trainings may enlarge their vision, which may contribute to their teaching practices. Therefore, their administrators should support their developmental efforts. According to Kimwarey, Chirure, and Omondi (2014), teachers' empowerment is an important aspect of developing their professional competence.

Moreover, concerning their self-efficacy, most teachers believe that their administrators do not develop teachers' self-efficacy. They are hoping that their principals will support their projects because being a teacher is not enough. Completing teachers' deficiencies with care, organizing social and motivational facilities, and providing in-service trainings and presentations can help teachers discover themselves. It may also enable teachers to link theory and practice.

Regarding supporting teacher autonomy, most participants claimed that their autonomy is not supported. They say that they are not allowed to do some activities to enrich their classes. Meanwhile, some teachers surprisingly could not understand the term "autonomy." The participants desire more responsibility in their classes regarding teaching methods, testing and class materials.

What is more, when teacher empowerment through employing them in managerial positions is concerned, most teachers hold a negative opinion about it. They state that teacher empowerment should basically be the central government's responsibility. School administrators do not delegate such positions to them despite having vacant positions. In fact, their aim is not to empower teachers, and they consider these teachers to be a threat for their positions. Sometimes they behave with political considerations.

According to Lee and Nie (2015), consequently, the traditional administrative roles of school leaders changed from mainly technical functions, like planningteachers' timetables and duties and introducing new curriculum, to leadership roles which require increased managerial competence. Moran (2015) claims that administrators should find ways to empower and promote teachers to develop their capacities regarding assisting them with teaching practices. As a result of this research, we can conclude that in order to increase teacher efficiency and prevent outcomes of excessive stress, administrators should empower teachers. Some recommendations for future research are as follows:

- A mixed research study could be conducted to compare the results.

- A comparative research study can be carried out to determine cultural effects.

# References

Bailey, K. D. (1994). *Methods of social research.* (4th Ed.). New York: The Free Press.

Bartholomew, S.K., Melendez-Delaney, G., Orta, A., & White, S. (2005). *Untapped resources: Assistant principals as instructional leaders. PL, May 2005*. Retrieved November 6, 2016 from http://www.nassp.org/Portals/0/Content/51443.pdf

Bogdan, R. C., & Biklen, S. K. (1998). *Qualitative research in education: An introduction to theory and methods (3rd Ed.).* Needham Heights, MA: Allyn & Bacon.

Bogler, R.., & Nir, A.E. (2012). The importance of teachers' perceived organizational support to job satisfaction: What's empowerment got to do with it? *Journal of Educational Administration, 50*(3), 287-306.

Bogler, R., & Somech, A. (2004). Influence of teacher empowerment on teachers' organizational    commitment, professional commitment and organizational citizenship behavior in schools. *Teaching and Teacher Education, 20*, 277-289.

Bolin, F. S. (1989). Empowering leadership. *Teachers College Record*, *19(1),* 81-96.

Byham, W.C., & Cox, J. (1992). *Zapp in education*. New York: Fawcett Columbine.

Creswell, J. (2008). *Educational research planning, conducting and evaluating quantitative and qualitative research*. International Pearson Merrill Prentice Hall.

Creswell, J. (2002). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Upper Saddle River, NJ: Merrill Prentice Hall.

Crum, K. S., Sherman, W. H., & Myran, S. (2009). Best practices of successful elementary school leaders. *Journal of Educational Administration, 48(1),* 48-63.

Dee, J. R., Henkin, A. B., & Duemer, L. (2002). Structural antecedents and psychological correlates of teacher empowerment. *Journal of Educational Administration, 34*(3), 257-277.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2005). *The Sage handbook of qualitative research (3rd ed.).* Thousand Oaks, CA: Sage.

Devos, G., Tuytens, M., & Hulpia, H. (2014). Teachers' organizational commitment: Examining the mediating effects of distributed leadership. *American Journal of Education, 120*, 205-231.

Gerke, W. (2004). *More than a disciplinarian*. *PL*, November, 2004. Retrieved November 7, 2016 from http://www.nassp.org/Portals/0/Content/48190.pdf

Glaser, B. G. (1992). *Theoretical sensitivity: advances in the methodology of grounded theory.* Mill Valley, Ca: Sociology Press.

Goyne, J., Padgett, D., Rowicki, M., A., & Triplitt, T. (1999). *The journey to teacher*

*empowerment, http://files.eric.ed.gov/fulltext/ED434384.pdf,retrieved on 25.09.2016.*

Hatcher, R. (2005). The distribution of leadership and power in schools. *British Journal of Sociology of Education*, *26*(2), 253-267.

In'am, A. (2015). Mathematics teachers' response towards teacher empowerment at junior high school in Indonesia, *American Journal of Educational Research, 3(4),* 439-445.

Irwin, J. W. (1996). *Empowering ourselves and transforming schools: Educators making a difference.* Albany, N.Y: State University of New York Press.

Jackson, K. M., & Marriott, C. (2012). The interaction of principal and teacher instructional influence as a measure of leadership as an organizational quality. *Educational Administration Quarterly, 48*(2), 230-258.

Kerkhof , van de M. (2006). *The repertory grid technique, (RGT), integrated assessment. R*etrieved on 5 November, 2016, from http://www.ivm.vu.nl/en/Images/PT4_tcm53-161509.pdf,1-7.

Kimwarey, M. C., Chirure, H. N., & Omondi, M. (2014). Teacher empowerment in education practice: Strategies, constraints and suggestions, *IOSR Journal of Research & Method in Education (IOSR-JRME, 4(2),* 51-56.

Kirby, P. C., & Wimpelberg, R., & Keaster, R. (1992). Teacher empowerment depends on needs, expectation of principals, schools, districts. *NASSP Bulletin*, 76(540), 89-95.

Klecker, B. J., & Loadman, W. E. (1998). Defining and measuring the dimensions of teacher empowerment in restructuring public schools. *Education, 118,* 358-370.

Lee, A. N., & Nie, Y. (2015). Teachers' perceptions of school leaders' empowering behaviours and psychological empowerment: Evidence from a Singapore sample, *Educational Management Administration & Leadership*, 1–24.

Maeroff, G. I. (1988). *The empowerment of teachers*. New York: Teachers College Press in http://www.questia.com/library/1G1-16138677/defining-teacher-empowerment/

Marks, H. M., & Louis, K. S. (1997). Does teacher empowerment affect the classroom? The implications of teacher empowerment for instructional practice and student academic performance. *Educational Evaluation and Policy Analysis*, *19*(3), 245-275.

Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research (4thEd.).* Thousand Oaks, CA: Sage.

Martin, K., & Coleman, P. (2011). Licensing teacher leaders: The Kansas model. *The Delta Kappa Gamma Bulletin, Spring (2011)*, 6-9.

Mayring, P. (2000). Qualitative content analysis, forum: *Online Journal Qualitative Social Research, 1(2),* 1-10.

Miles, M. B., & Huberman, M. A. (1994). *Qualitative data analysis: A sourcebook of new methods.* Beverly Hills, CA: Sage.

Moran, K. A. (2015). Teacher empowerment: School administrators leading teachers to lead, *Unpublished Doctoral Dissertation,* Youngstown State University.

Moye, J. M., Henkin, A. B., & Egley, R. J. (2004). Teacher-principal relationships exploring linkages between empowerment and interpersonal trust. *Journal of Educational Administration, 43*(3), 260-277.

NCCTQ (National Comprehensive Center for Teacher Quality). (2007). *Key issue: Enhancing teacher leadership.* Retrieved November 6, 2016 from http://www.gtlcenter.org/sites/default/files/docs/EnhancingTeacherLea dership.pdf

Pearson, L. C., & Moomaw, W. (2006). Continuing validation of the teaching autonomy scale. *The Journal of Educational Research*, *100*(1), 44-51.

Peel, H., & Walker, B. (1994). What it takes to be an empowering principal. *Principal, 73(4),* 41-42.

Prawat, R. S. (1991). Conversations with self and settings: A framework for thinking about teacher empowerment. *American Educational Research Journal*, *28*(4), 737-757.

Rice, E. M., & Schneider, G. T. (1994). A decade of teacher empowerment: An empirical analysis of teacher involvement in decision-making, 1980-1991. *Journal of Educational Administration*, *32(1),* 43-58.

Rinehart, J. S., Short, P. M., Short, R. J., & Eckley, M. (1998). Teacher empowerment and principal leadership: Understanding the influence process. *Educational Administration Quarterly, 34*, 630-649.

Ross, J. A., & Gray, P. (2006). School leadership and student achievement: The mediating effects of teacher beliefs. *Canadian Society for the Study of Education*, *29(3),* 798-822.

Seed, A. H. (2006). Making empowerment and collaboration part of the lives of highly qualified team teachers. *Middle School Journal*, *37*(5), 40-44.

Short, P., & Greer, J. (1997). *Leadership in empowered schools*. Upper Saddle River, New Jersey: Prentice-Hall Inc

Terry, P. M. (1995). Empowering teachers as leaders, *National Forum Journals*, 1-8.

Thomas, K. W., & Velthouse, B. A. (1990). Cognitive elements of empowerment: An "interpretive model" of intrinsic task motivation. *Academy of Management Review*, *15*, 666-681.

### Öğretmenleri Güçlendirme: Okul Yöneticilerinin Rolleri

**Atıf:**

### Özet

*Problem Durumu:* Eğitim sisteminin en önemli unsuru olan öğretmene duyulan gereksinim, antik dönemden günümüze kadar sürekli artmasına karşın, öğretmen yetiştirme ve niteliğinin geliştirilmesine ilişkin tartışmalar halen toplumların gündemi meşgul etmektedir. Bu durumun uzay, atom, demokrasi ve bilgi çağları ile endüstri devrimlerinin gereksinim duyduğu insan kaynağının yetiştirilmesinde okul ve öğretmenlere ilişkin toplumun beklentilerden kaynaklandığı söylenebilir. Küreselleşme ve bilgi toplumu olgusu ile eşiğinde olduğumuz dördüncü sanayi devriminde gereksinim duyulan insan kaynağını yetiştirme ihtiyacı okul yöneticisi ve öğretmenlere yeni rol ve sorumluluklar yüklemektedir. Bilgi tabanının değişmesi ve bilgiye ulaşmanın kolay olması nedeniyle öğretmenden, öğrencilere bilgi aktarmak yerine bilgiye ulaşma yöntemleri, öğrenmeyi öğretme, bilginin uygulamaya

dönüştürülebilmesi için rehberlik ve mentorluk etme ile analitik, özgür ve yaratıcı düşünceyi geliştirme, birlikte öğrenme ve takım çalışmasıyla sinerji oluşturma yöntemlerini uygulayarak yeni dönemin gereksinimi olan insan kaynağını yetiştirmesi beklenmektedir. Öğretmenlerin bütün bu süreçleri okul ve sınıfta uygulayabilmesinde, okul yöneticilerinin öğretmenleri güçlendirme rolleri önemli katkı sağlayacaktır. Öğretmen güçlendirilmesi, okul politikalarının oluşturulması ve uygulanmasında karara katılmaları, kendi öğretim süreçlerinde mesleki özerkliğe sahip olmaları, mesleğin değeri koruyarak öğretmenlerin statüsünün güçlendirilmesi, öz yeterliklerinin desteklenmesi, mesleğin çekiciliğinin artırılması ve yönetsel görevlerle gelişimlerinin sağlanmasıdır. Bu çalışmada yöneticilerin okul yönetimine ilişkin politikalarında öğretmenleri güçlendirmek için ne tür çalışmalar yürüttükleri belirlenerek ulaşılan sonuçlara göre öneriler geliştirilecektir.

*Araştırmanın Amacı:* Bu çalışma, öğretmen görüşlerine göre öğretmen güçlendirilmesi konusunda okul yöneticilerinin rollerini belirlemeyi amaçlamaktadır.

*Araştırmanın Yöntemi:* Çalışmada nitel araştırma deseni kullanılmıştır. Bu yöntemile yürütülen çalışmaların amacı, olay ve olguların altında yatan gerçekleri ya da anlamları ortaya çıkarmak, bir konu hakkında derinlemesine bilgi elde etmektir. Araştırma kapsamında 2015-2016 akademik yılında İstanbul'da görev yapan ve maksimum çeşitlilik yöntemiyle seçilen 20 öğretmen oluşturmaktadır. Araştırma verileri yarı yapılandırılmış görüşme yöntemiyle toplanmıştır. Görüşmeler elektronik olarak kayıt edilmiştir ve görüşmelerin ortalam 45-60 dk. arasında sürmüştür. Elde edilen veriler, içerik analizi ile çözümlenmiştir. Araştırma güvenirliği için betimsel analiz iki kişi tarafından ayrı ayrı yapılmış ve % 94 uyuşum yüzdesine ulaşılmıştır. Bulguların ortaya konması ve desteklenmesi amacıyla metin içerisinde katılımcı görüşlerinden doğrudan alıntılara yer verilmiş ve alıntının kime ait olduğuna ilişkin kodlama yapılmıştır.

*Bulgular ve Yorumlar:* Okul yöneticilerinin öğretmenleri güçlendirmelerine ilişkin bulgular ve yorumlara yer verilmiştir. Buna göre karara katarak öğretmenleri güçlendirmede, öğretmenlerin büyük bir kısmı genç okul yöneticilerin kendilerini okulda karar süreçlerine kattıklarını ve bu durumdan memnun olduklarını belirtmişlerdir. Buna karşın bazı öğretmenler, yöneticilerin karar alırken kendilerine dahi danışmadıklarını ifade etmişlerdir. Yöneticilerin mesleki gelişimlerini destekleyerek öğretmenleri güçlendirme konusundaki öğretmen görüşleri genelde olumsuzdur. Bu kapsamda öğretmenler, yöneticilerin onların mesleki gelişimlerine destek olmadıklarını belirtilmiştir. Diğer bir yandan yöneticiler de öğretmenlerin bu yöndeki çabalarını gereksiz ve boşa zaman harcama olarak değerlendirmektedirler. Hâlbuki öğretmenler mesleklerini sürdürürken akademik desteğe ihtiyaç duyarlar. Bu kapsamda yönetim tarafından desteklenmek durumundadır. Bazı öğretmenler, yöneticilerinin programlarını ayarlayarak ve izin vererek mesleki eğitimlere katılmalarına ve Yüksek Lisans yapmalarına yardımcı olduklarını belirtmişlerdir. Statülerini geliştirerek öğretmenleri güçlendirme konusunda, öğretmenlerin önemli bir kısmı yöneticilerin bu konuda ellerinden geleni yaptıklarını ifade etmelerine karşın bazı öğretmenler destek görmediklerini belirtmişlerdir. Bu durum genellikle

öğretmenin veliye karşı statüsü olarak algılanmaktadır. Ancak sadece bundan ibaret değildir, öğretmenlerin statülerinin güçlendirilmesi onların sosyal ve ekonomik durumlarının güçlendirilmesi anlamına da gelmektedir. Bu anlamda öğretmenler, hem okul hem de toplumda kendilerini güçsüz hissetmekte ve toplumdan ve okul yönetiminden destek beklemektedirler. Öğretmenlerin öz yeterliklerini geliştirmesi yoluyla güçlendirilmesi konusunda öğretmenlerin önemli bir kısmı olumlu düşünmemektedirler. Bu kapsamda yöneticiler, öğretmen olmanın öz yeterlik için yeterli olduğunu düşünmektedirler. Hâlbuki öğretmenler, yöneticilerin daha esnek olmalarını ve projelerini desteklemelerini beklemektedirler. Bu konuda bazı öğretmenler olumlu değerlendirmeler yapmaktadırlar. Bu süreçte yöneticilerin onların eksikliklerini tamamlamak, sosyal aktiviteler düzenlemek, motivasyonel eylemler, hizmet içi eğitimler, sunumlar, olumsuz davranışlarında bile olumlu geribildirim vermeleri yoluyla onların yeterliklerini güçlendirdikleri anlaşılmaktadır. Öğretmenlerin özerkliklerini destekleme yoluyla güçlendirilmeleri konusunda öğretmenlerin kararsız oldukları anlaşılmaktadır. Bu anlamda bazı öğretmenler, yöneticilerin derslerini kesmeyerek, öğretim ve ölçme yöntemleri ile ders materyallerine karışmayarak özerkliklerini desteklediğini belirtmektedirler. Buna karşın diğer bazı öğretmenler ise, yöneticilerin kendilerini desteklemedikleri, toleranslı davranmadıkları ve hatta derslerini çeşitlendirmek istediklerinde buna izin verilmediğini belirtmektedirler. Mesleğin çekiciliğini artırmak yoluyla öğretmenleri güçlendirme konusunda, öğretmenlerin önemli bir kısmı yöneticilerin okulu iyi bir yer haline getirmek için çaba harcadıklarını vurgulamaktadırlar. Sorunları öğretmene yansıtmadan çözerek, sosyal organizasyonlar (*tur, yemek ve eğlence*) düzenleyerek, özel okullarda ise maaş ikramiyesi ve özel sigorta yaparak göstermektedirler. Genç yöneticilerin öğretmenlerle daha iyi ilişkiler kurmaya çalıştıkları ve okul dışında toplantılar düzenledikleri anlaşılmaktadır. Bazı öğretmenler ise yöneticilerin bu konuda fazla çaba göstermediklerini ve sınırlı rolleriyle yöneticilerin tek başlarına bunu yapamayacaklarını ve bunun bir devlet politikası olması gerektiğini belirtmektedirler. Ayrıca, öğretmenler yöneticilerin genelde kendilerine güvenmediklerini ifade etmektedirler. Öğretmenlerin idari rollerle güçlendirilmesi konusunda **ö**ğretmemeler çoğu yöneticilerin kendilerine sorumluluk vermekten kaçındıklarını belirtmektedirler. Yönetsel roller, öğretmenlerin asli görevleri olarak kabul edilmediği için, okul yöneticileri boş pozisyonlar olmasına rağmen görevlendirme yapmak istememektedirler. Okul yönetimini öğrenmek isteyen öğretmenlere boş zamanlarında bir müdür yardımcısının yanına gidip ona yardım ederek öğrenebilecekleri önerilmektedir. Bazı yöneticiler de iş yüklerini azaltmak için öğretmenlere bazı görevler vermektedirler. Öğretmenler, okul yöneticilerinin bu konuda öğretmeni güçlendirmek istemediklerini, bunu genelde siyasi nedenlerle yapmak istemediklerini hatta kendilerini rakip olarak gördüklerini belirtmişlerdir. Bazı öğretmenler ise yöneticilerin idareye katkı sağlayabileceklerini düşündükleri öğretmenlere küçük idari görevler verdiklerini belirtmişlerdir.

*Araştırmanın Sonuçları ve Önerileri:* Öğretmenler, yöneticilerin onları okulda bazı konularda kararlara katmalarından memnundurlar. Buna karşın yöneticilerin mesleki gelişimleri için kendilerine gerekli desteği sağlamadıkları ve öz yeterliklerinin

güçlendirilmesi için motivasyonel ve eylemsel teşvikler konusunda cesaretlendirmedikleri sonucuna ulaşılmıştır. Mesleki özerklik konusunda okul yöneticilerinin, ölçme ve değerlendirme konularında öğretmenlere müdahale etmedikleri, ancak gerekli destek ve derslerin çeşitlendirilmesi konusunda da toleranslı davranmadıkları sonucuna ulaşılmıştır. Öğretmenlerin statüsünün yükseltilmesi konusunda, öğretmenler genelde okul yöneticilerinden destek beklemekte, özel okul yöneticilerinin bazı çabaları olmasına karşın bu konunun devlet politikası olması gerektiği yönünde yüksek bir algı bulunmuştur. Öğretmemeler, çoğu yöneticilerin siyasi nedenlerle öğretmenliği asli görev olarak gördüklerinden kendilerine idari ve yönetsel sorumluluklar vermek istemediklerini belirtmişlerdir. Araştırma sonucunda aşağıdaki öneriler geliştirilmiştir.

Eğitim sisteminin en önemli unsuru olan öğretmenlerin, sınıfta kendisine verilen müfredatı uygulayan ve sadece ders veren ve okulun ve eğitimin sisteminin işleyişine karışması pek istenmeyen meslek elemanı algısından vazgeçilmesi için okulda ve tüm eğitim sisteminin yapılanmasında karar süreçlerine katılımları sağlanmalıdır.

Öğretmenlerin, öğretim süreçlerinde farklı yöntem, teknik ve sorunlara yaratıcı ve yenilikçi çözümler denemeleri konusunda cesaretlendirilmesi ve desteklenmesi gerekmektedir.

Öğretmenlerin mesleki gelişimlerini devam ettirebilmeleri için lisansüstü eğitim başta olmak üzere, hizmet için eğitimlere katılımları ve meslektaşla birlikte öğrenme yaklaşımları, meslektaş mentorluğu ve değerlendirmesi uygulamaları yapılmalıdır.

Öğrencilerin gelişim ve öğrenme kapasitelerini en iyi bildikleri için onların ders ve uygulamalarında, kaynak, öğretim yöntemi ve eğitim ortamının seçimine ilişkin öğretmenlerin özerk davranmaları cesaretlendirilmelidir.

Öğretmenlerin statüsünün yeniden yükseltilmesi, bilgi çağındaki yeni rollerinin yeniden tanımlanarak mesleki gelişim, örgütlenme ve istihdamında arz ve talep dengesinin korunması gerekmektedir.

Öğretmenlerin okulun yönetim süreçlerinden haberdar olmaları ve karar süreçlerine katılmaları okulun etkililiğini ve verimliliğini artıracağından öğretmenlerin bu gayretleri önemsenmelidir.

*Anahtar Kelimeler:* Okul, okul yönetimi, öğretmen, öğretmen güçlendirme.

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## Examining the Factors of Self-Compassion Scale with Canonical Commonality Analysis: Syrian Sample*

Burhanettin OZDEMIR[1] Nesrin SEEF[2]

| ARTICLE INFO | ABSTRACT |
|---|---|
| | **Purpose of Study:** The purpose of this study is to examine the psychological structure of self-compassion and to determine the relationship between the sub-dimensions (or factors) of the self-compassion-scale and the contribution of each factor to the construct. Although the self-compassion scale has been commonly used in the area of psychology, the number of the studies that examine the relationship between the factors (or sub-dimensions) of self-compassion is limited. The contribution of this study is assumed to be substantial since it examines the relationship between the several factors of self-compassion and determines the unique and common contribution of each factor to the self-compassion construct**. Method:** This study employed a relational survey method. A purposive sampling |

technique was used in order to determine the study group which consisted of 593 university students from Damascus University, Syria. **Findings and Results:** According to canonical correlation analysis *mindfulness* was the most important among the positive factors set, while *over-identified* was the most important among the negative factors set. On the other hand, common variance of *common-humanity* and *self-kindness* was quite large, indicating multicollinearity between these two factors. Additionally, the contribution of *common humanity* was negligibly small; therefore, it can be excluded from the model with a small sacrifice in explained variance. **Conclusions and Recommendations:** Although the results of this study suggest the exclusion the *common-humanity* factor from the self-compassion structure, more research should be conducted to support this finding both theoretically and empirically. Also, additional statistical methods should be used to explore the complex relationship between factors of self-compassion within different samples.

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[1] Corresponding Author: Burhanettin OZDEMIR, Siirt University, Education Faculty, e-mail: b.ozdemir025@gmail.com,
**ORCID**: http://orcid.org/0000-0001-7716-2700.
[2] Damascus University, SYRIA, e-mail: n-seef@hotmail.com,
**ORCID**: http://orcid.org/0000-0002-0591-7737.

### Introduction

In the 21th century the attention of western psychologists has focused on two concepts, self-compassion and mindfulness. These concepts are considered to be the foundation of different eastern writings. However, Buddhist philosophy and the psychologists differed in defining the concept of self-compassion. Unlike the eastern psychologists, the psychologists in the west looked at it from the aspect of sympathy to others; considering it to be a human feature to understand the suffering of others and the desire to do anything for them in order to reduce the severity of their suffering and pain (Al Asimi, 2014).

Self-compassion suggests alternative solutions to the psychological problems that one can be faced with. Moreover, it helps individuals make self-observations about their feelings and thoughts during an unfortunate situation (Ferreira et al., 2013). It also helps individuals to be aware of the personal problems consciously, rather than turning a blind eye to them. Approaching a problem consciously with a self-compassion phenomena is the most important step in order to solve the problems (Stuart, 2009, 29).

The self-compassion scale, which was developed by Neff (2003b), enables us to be acquainted with ourselves and to evaluate our current psychological state by taking the attributes related to each of the factors of self-compassion into account. These factors are defined as maintaining balance between compassionate and uncompassionate ways so that one can cope with an unwilling situation and fail with either kindness (*self-kindnes*s) or judgement (self-judgement), consciously consider problems as part of common experience (*common humanity)* or isolation (*isolation*) and dealing with sufferings either through mindful (*mindfulness*) or in an over-identified (*over-identification*) manner (Neff, 2016b). As can be seen, the aforementioned three bipolar-components constitute the self-compassion construct. Thus, one can define the self-compassion construct as a dynamic system based on the interaction between these bipolar components (Neff, Whittaker, & Karl, 2017; Veneziani, Fuochi, & Voci, 2017). In the following section, a brief summary of the six different factors of self-compassion that constitute the Self-Compassion Scale (SCS) is provided.

*Self-kindness* is a state of understanding the individual for himself/herself in situations exhibiting a lack of self-efficacy or suffering instead of issuing harsh sentences on it (Neff, 2003a). For instance, the individuals who have self-compassion consider themselves imperfect and understand that they may fail to achieve their goals. Therefore, they tend to be kind towards themselves when they face painful experiences, and this is what helps them to deal with negative experiences objectively without any exaggerated emotions (Neff & Vonk, 2009, 23, 50).

*Self-judgment* is a state of mind in which individuals treat themselves in a harsh manner when they go through difficult circumstances, depending on the degree of hardness (Neff, 2003b).

*Common-humanity* is a state where the individual sees his/her own experiences as a part of the human experiences instead of separate from other experiences.

*Isolation* is a state of mind in which an individual has a sense of withdrawn solitude while he or she thinks about his or her mistakes (Neff, 2003a).

*Mindfulness* means that an individual tries to make his or her feelings balanced when he or she faces uncomfortable emotions.

*Over-identification* is a state of mind that control an individual's mind and force him or her to think that everything is predicament when he or she feels frustrated (Al Asimi, 2014)

Previously conducted research indicates that self-compassion is positively correlated with self-esteem, life satisfaction, consciousness, independence and optimism, while it is negatively correlated with depression, self-criticism and neurotic perfectionism (Neff, 2003a, 2003b; Neff et al, 2005; Akin, Akin & Abacı, 2007). Likewise, other studies that examine the relationship between self-compassion and psychopathological symptoms indicate that when self-compassion of an individual increases, psychopathological symptoms such as anxiety, depression and stress tend to decrease (MacBeth & Gumley 2012; Muris, 2015).

Other studies indicate that the individuals who have a tendency towards self-compassion are expected to face fewer negative emotions (Leary et al., 2007; Arimitsu & Hofmann 2015; Odou & Brinker, 2014), and their personalities are characterized by flexibility in stressful situations that often cause failure and frustration. Therefore, finding a scale for self-compassion that has a high degree of reliability and consistency is considered to be substantial.

Along with the feasibility of the self-compassion scale (SCS), psychometric properties, validity and usage of total score obtained from the SCS has been widely criticized. However, Neff (2016b) suggested that self-compassion could be used in different structures depending on the objective of the research. Some studies suggest using a two-factor model of self-compassion in which *self-kindness, common humanity,* and *mindfulness* constitute the "self-compassion" factor and *self-judgment, isolation,* and *over-identification* constitute the "self-criticism" factor (Wood et. al., 2010; Van Dam et al., 2012; Lopez et al., 2015). These two sets of factors can be classified as *positive factors* and *negative factors*, respectively. Moreover, some studies claim that the bi-factor model of self-compassion appears to be a more realistic representation of the construct, rather than the higher order model of self-compassion, which basically consists of six factors.

## Purpose

The purpose of this study is (1) to examine the criticized psychological structure of self-compassion and (2) to determine the unique and common contributions of each factor to the construct and (3) the degree of relationship between the sub-dimensions (or factors) of the scale as administered to Syrian students. The self-compassion scale consist of six factors that are named *self-kindness, self-judgement, common humanity, isolation, mindfulness* and *over-identified,* respectively.

Neff (2016b) suggests that the factors of the self-compassion scale can also be classified into two groups, positive factors and negative factors, which roughly represents same structure. Therefore, in this study, factors related to negative characteristics of an individual are classified as *negative factors*, while factors related to positive characteristics of an individual are classified as *positive factors* in order to investigate relationship between the factors of self-compassion and the contribution of each factor to the structure. Therefore, *negative factors* consist of *self-judgement, isolation* and *over identified*, while positive factors consist of *self-kindness, common humanity* and *mindfulness*.

Although the self-compassion scale has been commonly used in the area of psychology, the number of the studies that examine the relationship between the factors (or sub-dimensions) of self-compassion are limited. Contribution of this study is assumed to be substantial, since it not only examines the relationship between the factors of self-compassion, but also determines the unique and common contribution of each factor to the psychological structure of self-compassion. Thus, with the help of this study, the contribution of each negative and positive factor to self-compassion can be examined along with relationship between these factors.

*Research Questions*

In this study, the relationship between the predictor variable set, which consisted of negative factors related to self-compassion, and the criterion variable set, which consisted of positive factors related to self-compassion, was examined with canonical commonality analysis. The research questions of this study are as follows:

1. What is the relative importance of factors related to self-compassion's psychological structure according to canonical correlation analysis?
2. What are the unique and common effects of negative factors on positive factors associated with self-compassion?
3. How do unique variance associated with each factor and common variance explained by combination of factors differ within predictor and criterion variable sets?
4. Which is the most suitable model that can be constructed to explain relationship between the negative factors (predictor variable set) and positive factors (criterion variable set) related to self-compassion?

**Method**

*Research Design*

This study employed a relational survey method since it aimed to examine the psychometric properties of self-compassion and the relationship between the negative and positive factors of the self-compassion scale by the means of canonical correlation and commonality analysis. The relational survey method is suggested, when the ultimate goal of study is to determine the degree of interaction and relationship among multiple variables (Cohen, Manion, & Morrison, 2000; Karasar, 2006).

*Research Sample*

This study was carried out during the 2015–2016 academic year at Damascus University. The research sample consisted of 593 literature and science students in their first and fourth years in the education faculty. Table 1 shows the distribution of individuals in the research group with respect to gender, college and the year that they are studying.

**Table 1**

*Distribution of the Research Group with Respect to Gender, College and Year*

| Year | Gender | | College | |
|------|--------|--------|---------|-----------|
| | Male | Female | Science | Literature |
| First year | 162 (27.31%) | 143 (24.11%) | 158 (26.64%) | 144 (24.28%) |
| Fourth year | 160 (26.98%) | 128 (21.58%) | 134 (22.59%) | 157 (26.74%) |
| Total | 322 | 271 | 292 | 301 |

Table 1 shows that the self-compassion scale was administered to 271(43%) female students and 322 (57%) male students. Additionally, the study group consisted of 292 students studying science education and 301 literature education.

*Research Instruments and Procedures*

The self-compassion scale is a commonly used psychological test developed by Neff (2003b). The original form of the self-compassion scale is a likert scale and consist of 26 items that has five different alternatives ranging from almost never (1) to almost always (5). Moreover, Raes, Pommier, Neff and Gucht (2011) developed the short form of the self-compassion scale that consists of twelve items with six factors relevant to the original form. Raes and his colleagues showed that the short form has an almost identical factorial structure as compared to original form with 26 items and the internal consistency coefficient of the short form was substantially high.

*Validity and Reliability*

The short form of the self-compassion scale was first adapted to Arabic by Alabrsh (2015), and the Arabic version of the self-compassion scale was used to collect data from Damascus University. Confirmatory factor analysis results indicated that the Arabic version of the short form had the same factorial structure of original form. Additionally, Cronbach's alpha reliability coefficient and split-half reliability coefficient were equal to 0.87 and 0.83, respectively. Moreover, test-retest reliability coefficients of each factor ranged between 0.86 and 0.94. On the other hand, the corrected item-total correlation differed in the range of 0.54 and 0.75. As a result, the

Arabic version of self-compassion scale appears to be a valid and reliable psychological test.

*Data Analysis*

The relationship between the negative and positive factor groups were examined by Canonical Correlation and Canonical Commonality Analysis. Canonical Commonality Analysis enables us to determine the degree of commonality between the factors and the contribution of each factor to the measured psychological structure by the means of calculating unique and common variance associated with each factor. Therefore, it enables researchers to interpret the results in a more accurate and reliable way. The "yhat" R package, developed by Nimon, Oswald and Roberts (2015) defined in R statistical software, was used to run canonical correlation and canonical commonality analyses.

The z-scores of each variable was calculated in order to determine single outliers for each factor. According to the results, there appears to be no single outliers within the variable sets since all z-scores differed in a range of ±3.29. On the other hand, Mahalanobis distance was calculated in order to examine the multiple outliers. Mahalanobis distances differed in the range of 1.11 and 22.92. As a results, eighteen individuals with Mahalanobis distance scores higher than 12.59 ($X^2_{sd=6}$ = 12.59) were excluded from the research group. Finally, the study carried out with 575 participants.

## Results

First of all, canonical correlation analysis (CCA) was conducted to investigate the relationship between the factors of the self-compassion scale that constituted both criterion and predictor variables (negative factors and positive factors), respectively. Conducting CCA enables researchers to select canonical variable pairs that represents both predictor and criterion variable sets by the means of canonical functions. CCA does not provide detailed information about the relationship between the factors and interpreting the results of CCA is more complex than that of other statistical methods. That is why, after conducting CCA, commonality analysis was conducted in order to get more detailed information about the factorial structure of the self-compassion scale and the relationship between the negative and positive factors. One can easily determine the unique and common variance associated with each factor and the degree of multicollinearity between factors and construct the best model given the predictor and criterion variable sets with the help of commonality analysis.

Table 2 presents the correlation coefficients between the factors of the self-compassion scale, which is the simplest way to examine the relationship between the variables and the existence of multicollinearity between variables. Tabachnick and Fidell (2007) states that an observed correlation higher than 0.90 is an indicator of multicollinearity.

**Table 2**

*Correlation Coefficients Related to Factors of self-compassion*

|  | Self-kindness | Self-judgement | Common Humanity | Isolation | Mind-fulness | Over identified |
|---|---|---|---|---|---|---|
| Self-kindness | 1.00 | | | | | |
| Self-judgement | 0.59 | 1.00 | | | | |
| Common Humanity | 0.61 | 0.44 | 1.00 | | | |
| Isolation | 0.55 | 0.55 | 0.44 | 1.00 | | |
| Mind-fulness | 0.60 | 0.63 | 0.45 | 0.67 | 1.00 | |
| Over identified | 0.70 | 0.60 | 0.51 | 0.49 | 0.62 | 1.00 |

According to the correlation coefficients shown in Table 2, self-kindness and over-identified yielded the highest correlation coefficient, while both common-humanity-self-judgement and common-humanity–isolation factors yielded the smallest correlation coefficients. The other correlation coefficients ranged between 0.44 and 0.70, which indicates that the correlation between the factors was slight to moderate and there appeared to be no multicollinearity between both negative and positive factors.

In this study, both predictor (negative factors) and criterion variable sets (positive factors) consist of three factors. Therefore, only three canonical functions and three canonical variable pairs, that represent predictor and criterion variable sets, can be calculated. Table 3 displays significance test results related to each canonical variable set and canonical correlations ($R_c$) explained variance ($R_c^2$), which is equal to the square of $R_c$.

**Table 3**

*Canonical Correlation and explained variance ($R_c$)*

|  | $R_c$ | $R_c^2$ | Sig (p) |
|---|---|---|---|
| The first canonical function ($R_{c1}$) | 0.847 | 0.717 | 0.00 |
| The second canonical function ($R_{c2}$) | 0.219 | 0,047 | 0.00 |
| The third canonical function ($R_{c3}$) | 0.017 | 0,001 | 0.67 |

According to the results shown in Table 3, the first canonical correlation ($R_{c1}$) of the first canonical variable set was equal to 0.847; the explained variance related to the first canonical variable set was equal to 71.7% ($R_{c1}^2$). Although the second canonical function was statistically significant, the explained variance of the second canonical

function was equal to 4.7% ($R_{c2}^2$), which was considered to be substantially small (less than 10 %) and therefore should not be interpreted (Capraro & Capraro, 2001). As a result, self-compassion factors that constituted both predictor and criterion variable sets explained 71.8 % of variance in self-compassion psychological structure.

Table 4 displays standardized canonical coefficient and canonical loadings related to each factor within both positive and negative factor sets of self-compassion. These two statistics provide information about the relative importance of each factor in the model and the existence of multicollinearity between the factors. However, these statistics do not provide information about the degree of multicollinearity between factors.

**Table 4**

*Standardized Canonical Coefficients and Canonical Loadings*

| Variable set | Factors | Standardized canonical coefficients | Canonical loadings |
|---|---|---|---|
| Positive factors | Self-kindness | 0.460 | 0.879 |
| | Common humanity | 0.129 | 0.668 |
| | Mindfulness | 0.565 | 0.900 |
| Negative factors | Self-judgement | 0.273 | 0.805 |
| | Isolation | 0.419 | 0.812 |
| | Over identified | 0.504 | 0.871 |

The standardized canonical coefficients in Table 4 indicate that the most important positive factor was mindfulness (0.565), which was followed by self-kindness (0.460) and common humanity (0.129). On the other hand, the most important negative factor was over identified (0.565), which was followed by isolation (0.460) and self-judgement (0.129).

The square of canonical loadings gives the explained variance by a factor in a canonical variable set. According to Table 4, the self-judgement factor explained 64.8% ($0.805^2$) of the variance in positive factors set, while isolation and over-identified explained the 65.9% ($-0.812^2$) and 75.8% ($0.871^2$) of variance in positive factors set. The sum of the explained variance of factors was larger than 100%, which indicates the existence of multicollinearity between negative factors. Likewise, the self-kindness factor explained 77.2% ($0.879^2$) of the variance in the negative factors set, while the common-humanity and mindfulness factors explained the 44.6% ($-0.668^2$) and 81% ($0.9^2$) of variance in negative factors set. Similar to negative factors, the sum of explained variance percentages associated with positive factors exceeded 100%, which was an indicator of multicollinearity.

*Commonality analysis results*

One can only interpret canonical correlation coefficients and canonical loadings related to each variable set when canonical correlation analysis is favored. Therefore, this statistical method provides limited information about the complex relationships between the variables. İn this study, commonality analysis was applied to canonical variables that represent negative and positive factors associated with self-compassion. The results of commonality analysis were presented in Table 5, Table 6 and Table 7.

Table 5 depicts the unique and common variance coefficients associated with the positive factors of self-compassion. Total variance presented in Table 5 corresponds to the total explained variance of positive factors in the self-compassion model.

**Table 5**

*Variance components associated with the positive factors set*

|  | Factors | Commonality coefficients | Percentage (% R²) |
|---|---|---|---|
| Unique variance | Self-kindness | 0.075 | 10.46 |
|  | Common humanity | 0.007 | 1.02 |
|  | Mindfulness | 0.144 | 20.01 |
| Common variance | Self-kindness and Common humanity | 0.053 | 7.44 |
|  | Self-kindness and Mindfulness | 0.179 | 24.89 |
|  | Common humanity and Mindfulness | 0.012 | 1.64 |
|  | Self-kindness, Common humanity and Mindfulness | 0.248 | 34.55 |
|  | Total | 0.718 | 100.00 |

The unique effect of each factor representing the variance is only explained by the factor itself, while common variance represent the variance explained by the combination of different factors. Additionally, the proportion of each unique and common variance to the total variance as explained by models (%R²) were given in Table 5 in order to see contribution of each factor to the model.

Negative commonality coefficients are indicative of suppressor variables that obscure the interpretation of results and affect other variables in a negative way (Pedhazur, 1997). One can clearly see that all commonality coefficients in Table 5 related to positive factors are positive, which indicates that there is no suppressor factor in the positive factors set. Moreover, according to the results shown in Table 5, the common variance associated with self-kindness, common humanity and mindfulness had the largest percentage (34.55%), and it was followed by the common variance related to self-kindness and mindfulness (24.89%) and unique variance

related to self-kindness (20.01%). When only unique effects were taken into account, the mindfulness factor made the largest contribution to the model, while common humanity made a somewhat small contribution when compared to the other factors.

Table 6 presents the unique and common variance coefficients associated with the negative factors of self-compassion. The total variance presented in Table 6 corresponds to the total explained variance of negative factors in the self-compassion model.

**Table 6**

*Variance components associated with the negative factors set*

|  | Factors | Common effects ($R^2$) | Percentage (% $R^2$) |
|---|---|---|---|
| Unique variance | Self-judgement | 0.030 | 4.12 |
|  | İsolation | 0.083 | 11.61 |
|  | Over-identified | 0.110 | 15.34 |
| Common variance | Self-judgement and isolation | 0.059 | 8.26 |
|  | Self-judgement and over- identified | 0.104 | 14.50 |
|  | Isolation and over-identified | 0.059 | 8.12 |
|  | Self-judgement, isolation and over-identified | 0.273 | 38.06 |
|  | Total | 0.718 | 100.00 |

Similar to the results shown in Table 5, all commonality coefficients in Table 6 related to negative factors are positive, which indicates that there is no suppressor factor in the negative factors set either. When it comes to commonality coefficients, the common variance associated with self-judgement, isolation and over-identified factors had the largest percentage (38.6%), which was followed by unique variance related to over-identified (15.34 %) and common variance related to self-judgement and over-identified (14.50%). When only unique effects were taken into account, the over-identified factor made the largest contribution to the model among the negative factors.

Commonality analysis also provides $R^2$ values (explained variance) related to all possible sub-models that can be constructed with both positive and negative factors of self-compassion. One can easily decide on the best model and the most informative factors that predict the self-compassion psychological structure.

Table 7 present $R^2$ values of all possible sub-models that can be constructed with the factors within the positive and negative factors set so as to predict canonical variable pairs representing the negative and positive self-compassion factors.

**Table 7**

*R² values related to all possible sub-models of self-compassion factors*

| Positive factors | | Negative factors | |
|---|---|---|---|
| Factors | $R^2$ | Factors | $R^2$ |
| Self-kindness | 0.55 | Self-judgement | 0.466 |
| Common humanity | 0.319 | Isolation | 0.475 |
| Mindfulness | 0.584 | Over-identified | 0.545 |
| Self-kindness and common-humanity | 0.572 | Self-judgement and isolation | 0.608 |
| *Self-kindness and mindfulness* | 0.710 | Self-judgement and over-identified | 0.634 |
| Common humanity and mindfulness | 0.644 | Isolation and over-identified | 0.688 |
| Self-kindness, common humanity and mindfulness | 0.718 | *Self-judgement, isolation and over identified* | 0.718 |

According to the results shown in Table 7, the mindfulness factor alone explained 58.4 % ($R^2$=0.584) of the variance of model which could be considered quite large. When the positive factors set consisted of mindfulness and self-kindness explaining the variance related to this model increased to 71%, it was substantially close to the explained variance of the model, including all three positive factors (for K=3, $R^2$=0.718). Moreover, there appeared to be a substantially small reduction in the explained variance (0.718–0.710=0.008), when the common-humanity factor was excluded from the positive factors set. This result implies that *common-humanity* did not make a significant contribution to the prediction of positive factors of self-compassion and had multicollinearity with other factors since most of its variance was explained by other factors. Therefore, the *common-humanity* factor should be excluded from the positive factors set.

When it comes to $R^2$ values of sub-models constructed with negative factors, the over-identified factor itself explained 54.5% ($R^2$=0.545) of the variance of the model, which could be considered quite large when compared to other factors. However, all three of the negative factors made an almost similar contribution to the model. Therefore, the best model that could be constructed with negative factors to predict the first canonical variable pair seems to be the model including all three negative factors.

## Discussion and Conclusion

This study examined the relationship between the sub-dimensions (or factors) of the self-compassion scale short form and the criticized psychological structure of self-compassion that was administered to Syrian students. For these purposes, the

relationship between the "negative factors set", consisting of *self-judgement, isolation* and *over-identified*, and the "positive factors set", consisting of *self-kindness, common humanity* and *mindfulness*, were examined with canonical correlation and commonality analysis.

The results of the canonical correlation analysis, which provide information about the relative importance of each factor, indicate that *mindfulness* was the most important factor in the positive factor set, and it was followed by the *self-kindness* and *common-humanity* factors, respectively. On the other hand, *over-identified* was the most important factor in the negative factors set, and it was followed by the *isolation* and *self-judgement* factors, respectively. Additionally, the positive and negative factors explained 71.8% ($R^2=0,718$) of the variance in the self-compassion psychological structure.

Commonality analysis helps researchers determine the unique and common contributions of each factor to the model by partitioning the explained variance into its constituents. It also aids in determining the degree of multicollinearity between factors sets. According to the commonality analysis results, the unique variance associated with the *common-humanity* factor was substantially smaller as compared to the other factors in the positive factors set ($R^2=0.007$). On the other hand, the common variance of *common-humanity* and *self-kindness* was relatively large, which means that most of the variance of the common-humanity factor was explained by the *self-kindness factor* indicating the degree of multicollinearity between these two factors. Moreover, all possible sub-model results indicate that the total variance explained by positive factors decreased to 71% when the *common-humanity* factor was excluded from the model. These results suggest that the *common-humanity* factor can be excluded from the model with a small sacrifice in the explained variance.

In this study, the interpretation of total scores obtained from the self-compassion scale was avoided since the factorial structure of self-compassion was considered to not be a realistic representation of the construct. There are still ambiguities about which factorial structure is the best representation of self-compassion. Garcia-Campayo and her colleagues (2014) suggested the use of the original form of the self-compassion scale with a higher-order factorial model. They provided evidence about the relevance of this model, while some other studies examining the factorial structure of self-compassion found that the higher-order model with its six factor was not a valid representation of the construct (Hupfeld & Ruffieux, 2011; Petrocchi et al., 2013; Lopez et al., 2015). They also suggested that one should avoid reporting the total score obtained from the SCS as an indication of the self-compassion score of an individual. Likewise, the original six-dimensional structure of the self-compassion scale was confirmed by several studies (e.g. Lee & Lee, 2010; Azizi et al., 2013; Castilho, Pinto-Gouveia, & Duarte, 2015), while some studies also suggested presenting the construct with higher-order models (Chen et al., 2011; Castilho et al., 2015). However, some other studies (e.g. Costa et al., 2016; Petrocchi et al., 2013; Muris, Otgaar, & Petrocchi, 2016; Muris & Petrocchi, 2017; Neff, 2016a) did not confirm the higher-order model claiming, that the interpretation of scale scores was confounded in the presence of the higher-order model (Veneziani et. al., 2017).

In this study, the relationship between the factors of self-compassion was examined via canonical correlation and commonality analysis methods. Additionally, the factors were classified into two sets, positive and negative factors. The ultimate goal of this study was to examine the common and unique contribution of each of the factors and the interaction between these factors. Other statistical methods are suggested to uncover the complex relationships between the factors of self-compassion. Although the results of this study suggest the exclusion of the *common-humanity* factor from the self-compassion structure, more research should be conducted to support this finding both theoretically and empirically.

There are still ongoing discussions about which factorial model best fits the factorial structure of self-compassion. Some studies suggest a higher-order model with six factors, while some other studies suggest a two-factor structure consisting of positive factors ("self-compassion") and negative factors ("self-criticism") and a bifactor model consisting of six factors along with a general factor. Although there appeared to be alternative models, most of the researchers are in favor of using the bifactor model (Hupfeld & Ruffieux, 2011; Lopez et. al., 2015, Muris, 2015; Neff et al., 2017). To conclude, more studies that aim to examine the factorial structure of self-compassion with different models should be conducted within different populations other than university students.

## References

Akın, U., Akın, A. & Abacı, R. (2007). Oz-duyarlik olcegi: gecerlik ve guvenirlik calismasi [Self-compassion scale: The study of validity and reliability]. *H. U. Journal of Education,* 33, 01-10.

Alabrsh, A. (2015). Psychometric properties of the Scale Self-Compassion (short form). Field study on a sample of Damascus University students. *Journal of Association of Arab Universities for Education & Psychology,* (in press)

Al Asimi, A. (2014). Self-compassion and personal characteristics. A field study on high school students. *Journal of Educational and Psychological Research,* (23)-234-254.

Arimitsu, K., & Hofmann, S. G. (2015). Cognitions as mediators in the relationship between self-compassion and affect. *Personality and individual differences*, 74, 41-48. doi:10.1016/j.paid.2014.10.008.

Azizi, A., Mohammadkhani, P., Lotfi, S., & Bahramkhani, M. (2013). The validity and reliability of the Iranian version of the self-compassion scale. *Iranian Journal of Clinical Psychology*, 2, 17–23.

Capraro, R. M., & Capraro, M. M. (2001). Commonality analysis: Understanding variance contributions to overall canonical correlation effects of attitude toward mathematics on geometry achievement. *Multiple Linear Regression Viewpoints,* 27(2), 16-23.

Castilho, P., Pinto-Gouveia, J., & Duarte, J. (2015). Evaluating the multifactor structure of the long and short versions of the self-compassion scale in a clinical sample. *Journal of Clinical Psychology*, 71, 856–870.

Chen, J., Yan, L., & Zhou, L. (2011). Reliability and validity of Chinese version of self-compassion scale. *Chinese Journal of Clinical Psychology*, 19, 734–736.

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education*. 5th ed. London New York: Routledge Falmer.

Costa, J., Marôco, J., Pinto-Gouveia, J., Ferreira, C., & Castilho, P. (2016). Validation of the psychometric properties of the self-compassion scale. Testing the factorial validity and factorial invariance of the measure among borderline personality disorder, anxiety disorder, eating disorder and general populations. *Clinical Psychology & Psychotherapy*, 23, 460–468.

Ferreira, C., Gouveia, J., & Duarte, C. (2013). Self-compassion in the face of shame and body image dissatisfaction: Implication for eating disorder. *Cognitive Behavioral Research Center*, University of Coimbra, Portugal.

Garcia-Campayo, J., Navarro-Gil, M., Andrés, E., Montero-Marin, J., López-Artal, L., & Demarzo, M. M. (2014). Validation of the Spanish versions of the long (26 items) and short (12 items) forms of the Self-Compassion Scale (SCS). *Health and quality of life outcomes*, 12(1), 4.

Hupfeld J., & Ruffieux N. (2011) Validierung einer deutschen version der Self-Compassion Scale (SCS-D). *Zeitschrift für Klinische Psychologie und Psychotherapie,* 40 (2011), pp. 115–123.

Karasar, N. (2006). *Bilimsel arastirma yontemi [Scientific research method]*. Ankara: Nobel Yayin Dagitim.

Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J.(2007). Self-compassion and reactions to unpleasant self-relevant events: the implications of treating oneself kindly. *Journal of Personality and Social Psychology*, 92, 887–904.

Lee, W. K., & Lee, K. (2010). The validation study of the Korean version of self-compassion scale with adult women in community. *Journal of Korean Neuropsychiatric Association*, 49, 193–200.

López A, Sanderman R., Smink A., Zhang Y, van Sonderen E., Ranchor A., et al. (2015) A reconsideration of the self-compassion scale's total score: Self-compassion versus self-criticism. *PloS One,* 10(7). e0132940. doi:10.1371/journal.pone.0132940

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*, 545-552.

Muris, P. (2015). A protective factor against mental health problems in youths? A critical note on the assessment of self-compassion. *Journal of Child and Family Studies*, 1–5.

Muris, P., Otgaar, H., & Petrocchi, N. (2016). Protection as the mirror image of psychopathology: Further critical notes on the self-compassion scale. *Mindfulness*, 7, 787–790.

Muris, P., & Petrocchi, N. (2017) Protection or vulnerability? A meta-analysis of the relations between the positive and negative components of self-compassion and psychopathology. *Clinical psychology & psychotherapy*, 24: 373–383. doi: 10.1002/cpp.2005.

Neff, K. D. (2003a). The development and validation of a scale to measure self-compassion. *Self and Identity, 2*(3), 223-250.

Neff, K. D. (2003b). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85-102.

Neff, K. D. (2016a). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness*, 7, 264–274.

Neff, K. D. (2016b). Does Self-Compassion Entail Reduced Self-Judgment, Isolation, and Over-Identification? A Response to Muris, Otgaar,and Petrocchi (2016). *Mindfulness*, 7, 791–797.

Neff K.D., Hseih Y. & Dejitthirat K. (2005) Self-compassion, achievement goals, and coping with academic failure. *Self and Identity*, 4, 263–287.

Neff K.D., & Vonk, R. (2009) Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality*, 77, 23–50.

Neff, K. D., Whittaker, T., & Karl, A. (2017). Examining the factor structure of the self-compassion scale in four distinct populations: Is the use of a total scale score justified. *Journal of Personality Assessment*. http://dx.doi.org/10.1080/00223891.2016.1269334.

Nimon, K., Oswald, F., & J. K. Roberts. (2015). Interpreting Regression Effects: "yhat" R package. Retrieved from https://cran.r-project.org/web/packages/yhat/yhat.pdf. September 14 2016.

Odou, N., & Brinker, J. (2014). Exploring the relationship between rumination, self-compassion, and mood. *Self and Identity, 13*(4), 449–459.

Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction* (3rd ed.). Ft Worth, TX: Harcourt Brace.

Petrocchi, N., Ottaviani, C., & Couyoumdjian, A. (2013). Dimensionality of self-compassion: Translation and construct validation of the self-compassion scale in an Italian sample. *Journal of Mental Health*, 23, 72–77

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the self-compassion scale. *Clinical Psychology & Psychotherapy. DOI: 10.1002/cpp.702.*

Stuart, J. (2009). Maladaptive perfectionism and disordered eating in college women: The mediating role of self-compassion, Ph. D. Thesis, University of Florida.

Tabachnick, B. G., & Fidell, S. L. (2007). *Using multivariate statistics*. Boston: Pearson/Allyn & Bacon, 2007. Print.

Van Dam, N. T., Hobkirk, A. L., Danoff-Burg, S., & Earleywine, M. (2012) Mind your words: positive and negative items create method effects on the Five Facet Mindfulness Questionnaire. *Assessment,* 19, 123–130.

Veneziani, C. A., Fuochi, G., & Voci, A. (2017). Self-compassion as a healthy attitude toward the self: Factorial and construct validity in an Italian sample. *Personality and Individual Differences*, 119 (2017), 60–68.

Wood, A. M., Taylor, P. J., & Joseph, S. (2010). Does the CES-D measure a continuum from depression to happiness? Comparing substantive and artifactual models. *Psychiatry Res.,*177, 120–123.

## Öz-duyarlık Ölçeğinin Alt Boyutlarının Kanonik Ortak Etki Analizi İle İncelenmesi: Suriye Örneklemi

**Atıf:**

### Özet

*Problem Durumu:* Öz-duyarlık, bireyin kendine karşı iyimser davranması, karşılaştıkları sorunları kabullenmesi, rahatsız edici durumlarla karşılaştığında kendine daha sevecen davranması, başarısız ve yetersiz olduğu durumlarda bilinçli davranması ve karşılaşılan sorunların insan hayatının bir gereği olduğunu kabullenmesi olarak tanımlanabilir (Neff, 2003a; Akın, Akın ve Abacı, 2007). Öz-duyarlık bireylerin karşılaştıkları sorunların çözümünde alternatif bir yaklaşım önermektedir. Böylece, bireyin bir durum karşısında duyguları ve düşünceleri hakkında iç gözlem yapmasına olanak sağlar (Ferreira et al., 2013). Ayrıca, bireyi rahatsız eden kişisel sorunlardan kaçmak yerine bu sorunun bilinçli bir şekilde farkında olmasını sağlar. Öz-duyarlık olgusu ile sorunlara bilinçli bir şekilde yaklaşmak ise sorunun çözümü için atılacak en önemli adımdır (Stuart, 2009, s. 29). Araştırmalar öz-duyarlığın kendini kabul, yaşam doyumu, bilinçlilik, özerklik, mutluluk ve iyimserlik gibi birçok kavramla pozitif ilişkili olduğunu kanıtlamıştır. Aynı zamanda öz-duyarlık depresyon, öz-eleştiri, düşünce baskısı ve nörotik

mükemmeliyetçilikle negatif ilişkili bulunmuştur (Neff, 2003a, 2003b; Neff ve diğerleri, 2005; Akın, Akın ve Abacı, 2007). Neff (2003b) tarafından geliştirilen Öz-duyarlık Ölçeği bireyin kendisini tanımasına olanak sağlayan ve öz-duyarlığın alt boyutlarıyla ilişkili özellikleri göz önünde bulundurarak bireyin psikolojik durumunun değerlendirilmesine olanak sağlayan bir ölçme aracıdır.

*Araştırmanın Amacı ve Önemi:* Bu çalışmanın amacı, Suriyeli üniversite öğrencilerine uygulanan öz-duyarlık ölçeğinin alt boyutları arasındaki ilişkinin ve her bir faktörün öz-duyarlık psikolojik yapısına olan özgün ve ortak etkisinin kanonik ortak etki analizi ile incelenmesidir. Öz-duyarlık ölçeği formu 6 alt boyuttan oluşmaktadır. Öz-duyarlık ölçeği özellikle psikoloji alanında sıklıkla kullanılmasına karşın ölçeğin alt faktörlerinin birbiri ile ilişkisini inceleyen araştırma sayısı sınırlıdır. Bu araştırma bireylere uygulanan öz-duyarlık ölçeğinin alt faktörlerinin bir biri ile ilişkisini ve her bir faktörün öz-duyarlığa yapmış olduğu özgün ve ortak etkisini incelemeye olanak sağladığından önemli görülmektedir. Kanonik ortak-etki analizi her bir değişken kümesindeki değişkenlere ait özgün ve ortak varyanslarını hesaplayarak değişkenler arasındaki çoklu bağlantının derecesini, her bir değişkenin analize olan katkısını hesaplamaya olanak sağlar. Böylece araştırmacının daha doğru ve güvenilir yorumlar yapmasına yardımcı olur.

*Araştırmanın Yöntemi:* Bu çalışmada yordayıcı değişken kümesinde yer alan öz-duyarlıkla ilişkili olumsuz faktörler ile ölçüt değişken kümesini oluşturan öz-duyarlıkla ilişkili olumlu faktörler arasındaki ilişkinin incelenmesi amaçlandığından bu araştırmada ilişkisel tarama modeli kullanılmıştır. Birden fazla değişken arasındaki ilişkinin ve etkileşimin derecesini belirlendiği çalışmalarda ilişkisel tarama yönteminin kullanılması önerilmektedir (Cohen, Manion & Morrison, 2000; Karasar, 2006). Bu araştırma 2015-2016 eğitim ve öğretim yılında Şam Üniversitesi Eğitim Fakültesi'nin çeşitli bölümlerinde öğrenim gören 593 üniversite öğrencisi üzerinde yürütülmüştür. Öğrencilerin 271'si (% 43) erkek ve 332'si (% 57) kız öğrenciden oluşmaktadır. Değişkenlerde tek yönlü uç değerlerin olup olmadığı incelemek için her bir değişkene ait z puanları hesaplanmıştır. ±3.29 aralığının dışında kalan z puanının olmadığı bulunmuştur. Çok yönlü uç değerler ise Mahalanobis uzaklıkları hesaplanarak incelenmiştir. Elde edilen Mahalanobis değerlerinin minimum değeri 1.11 iken maksimum değeri 22.92'dir. Mahallonobis değeri 12.59'dan ($X^2_{sd=6}$ = 12.59) yüksek olan 18 bireye ait veri analizden çıkartılmıştır. Veri temizleme aşamasından sonra analizler 575 birey üzerinde sürdürülmüştür. Öz-duyarlık ölçeği ilk olarak Neff (2003b) tarafından geliştirilmiştir. Ölçeğin orijinal formu (1) hiçbir zaman (2) nadiren (3) sık sık (4) genellikle ve (5) her zaman şeklinde 5'li likert tipi bir derecelendirmeye sahip 26 maddeden oluşmaktadır. Raes, Pommier, Neff ve Gucht (2011) ise yapmış olduğu çalışma sonucunda 12 maddeden oluşan öz-duyarlık ölçeğinin kısa formunu geliştirmişler ve ölçeğin kısa formunun orijinal ölçekle aynı faktör sayısına sahip olduğunu ve iç tutarlık katsayılarını yüksek olduğu belirtilmiştir. Öz-duyarlık ölçeği 6 boyuttan oluşmaktadır. Bu boyutlar: *Özsevecenli*ğe (selfkindness) karşı *öz-yargılama (self-judgement)*, *paylaşımların bilincinde olmaya (common humanity)* karşı *yabancılaşma (isolation)* ve *bilinçliliğe (mindfulness)* karşı *aşırı-özdeşleşme (over identified)* boyutlarıdır.

Bu çalışmada kullanılan öz-duyarlık ölçeği kısa formu ise Alabrsh (2015) tarafından Arapçaya uyarlanmıştır. Yapılan doğrulayıcı faktör analizinde ölçeğin orijinal formla uyumlu olduğu görülmüştür. Ölçeğin iç tutarlılık katsayısı 0,86 ve test-tekrar test güvenirlik katsayılarının (0,86 – 0,94) aralığında ve iki yarı güvenirliğinin ise 0,83 olarak hesaplanmıştır. Ayrıca ölçeğin düzeltilmiş madde-toplam korelasyonlarının 0,54 ile 0,75 arasında sıralandığı bulunmuştur. Bu sonuçlar doğrultusunda ölçeğin geçerli ve güvenilir bir ölçme aracı olduğu söylenebilir. Özduyarlık yapısının alt faktörleri arasındaki ilişkiyi incelemek amacıyla, öz duyarlık ile ilişkili olumsuz ifadeler içeren faktörler negatif faktörler olarak, öz duyarlık ile ilişkili olumlu ifadeler içeren faktörler ise pozitif faktörler olarak sınıflandırılmıştır. Negatif faktörler *öz-yargılama,* *yabancılaşma* ve *aşırı-özdeşleşme* alt faktörlerinden oluşurken; pozitif faktörler ise, *özsevecenlik, paylaşımların bilincinde olma* ve *bilinçlilik* alt faktörlerinden oluşmaktadır. Değişken kümeleri arasındaki ilişki ise kanonik korelasyon ve kanonik ortak etki analizi ile incelenmiştir.

*Araştırmanın Bulguları:* Kanonik korelasyon analizi bulgularına göre, öz-duyarlık yapısı ile ilişkili pozitif faktörler kümesindeki en önemli faktörün *bilinçlilik* olduğu ve bunu sırasıyla *öz-sevecenlik* ve *paylaşımların bilincinde olma* faktörleri takip etmektedir. Benzer şekilde negatif faktörler kümesindeki en önemli faktörün *aşırı-özdeşleşme* olduğu ve bunu sırasıyla *yabancılaşma* ve *öz-yargılama* faktörleri takip etmektedir.Yordayıcı ve ölçüt değişken kümelerinde yer alan öz-duyarlık ölçeğine ilişkin faktörlerin öz-duyarlık yapısına ait varyansın %71,8'sini açıkladığı bulunmuştur (R²=0,718). Ayrıca ortak etki analizi bulgularına göre, pozitif faktörler kümesinde yer alan *paylaşımların bilincinde olma* faktörüne ait özgün ve ortak varyans değerlerine bakıldığında, değişkene ait özgün varyans değerinin oldukça düşük (R²=0,007) iken *öz-sevecenlik* ve *bilinçlilik* faktörleri ile açıkladığı varyans değerlerinin ise yüksek olduğu (R²=0,248) görülmektedir. Ayrıca paylaşımların bilincinde olma faktörü modelden çıkartıldığında, açıklanan varyans oranı ise % 71 olmaktadır.

*Araştırmanın Sonuçları ve Önerileri:* Araştırmanın bulguları göz önünde bulundurulduğunda *paylaşımların bilincinde olma* faktörü ile *öz-sevecenlik* ve *bilinçlilik* faktörleri arasında çoklu bağlantı olduğu ve bu faktöre ait özgün varyans değerinin düşük olmasından dolayı bu faktörün modelden çıkartılması önerilmektedir. Bu durumda öz-duyarlık ölçeğinin pozitif faktörler kümesinde yer alan faktör sayısı 2'ye inecektir. Ancak, *paylaşımların bilincinde olma* faktörünün öz-duyarlık psikolojik yapısından çıkartılmasının öz-duyarlık ölçeğinin teorik yapısına etkisinin ve ölçekten elde edilen puanların yorumlamasına olan etkisinin incelenmesi gerekmektedir. Bu bağlamda, farklı örneklemlerde ve farklı istatistiksel yöntemler kullanılarak ölçeğin faktörleri arasındaki ilişkinin incelenmesi önerilmektedir. Ayrıca, ölçme değişmezliği yöntemleri (measurement invariance methods) kullanılarak farklı alt gruplarda ve kültürlerde ölçeğin psikolojik yapısının incelenmesi önerilmektedir.

*Anahtar Kelimeler:* Öz-duyarlık ölçeği, kanonik ortak-etki analizi, psikolojik testler.

# A Meta-analysis of the Effectiveness of Alternative Assessment Techniques*

Eda GOZUYESIL[1] Isil TANRISEVEN[2]

| A R T I C L E   I N F O | A B S T R A C T |
|---|---|
| | **Purpose**: Recent trends have encouraged the use of alternative assessment tools in class in line with the recommendations made by the updated curricula. It is of great importance to understand how alternative assessment affects students' academic outcomes and which techniques are most effective in which contexts. This study aims to examine the impact of alternative assessment techniques on achievement. **Research Methods:** In the study, a meta-analysis was conducted to combine the effect sizes of the primary studies during data collection and data analysis. **Findings:** Data analysis indicated that alternative assessment techniques have a significant and positive effect (d=0.84) on students' |

academic achievement. Such techniques have been found to be more effective in Mathematics courses (d=0.84), and the effect of using portfolios in class (d=1.01) is worthy of note. In accordance with the moderator analysis, whereas the effect sizes do not significantly vary in terms of subject matter and type of alternative assessment technique, there is a significant difference in the effect sizes in terms of school levels of students.

**Implications for Research and Practice**: The results highlighted portfolios as a highly effective assessment technique for students' academic achievements, and it revealed the impact of alternative assessment techniques on enhancing academic outcome. However, the low effectiveness of authentic assessment at the primary level may be associated with the development of creativity and critical thinking skills over time.

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[1] Corresponding author: Nigde Omer Halisdemir University, TURKEY, edagozuyesil@gmail.com,
**ORCID**: http://orcid.org/0000-0002-2094-7600.
[2] Mersin University, TURKEY, isiltanriseven77@gmail.com,
**ORCID**: http://orcid.org/0000-0001-5884-2807.

## Introduction

A system based on the constructivist approach has been introduced with the education reform implemented in primary and secondary curricula in Turkey since 2004. The newly-developed curricula based on this approach have broken new ground in course content, teaching methods, materials and measurement and evaluation techniques (Gelbal and Kelecioglu, 2007; Yesilyurt, 2012). It appears that the most important innovation in these programs, which emphasize the individual differences between the learners, is in the field of evaluation (Coruhlu, Nas and Cepni, 2009; Yaman, 2011). With this change in the curricula, the use of performance-based alternative assessment tools as well as traditional assessment techniques has been suggested (Duban and Kucukyilmaz, 2008; Ozdemir, 2010). In this way, it has become important to evaluate students' skills and success from all aspects during the learning process and to observe their improvement.

Alternative assessment is defined as a non-traditional approach that informs students about what they know and can do, determines what they comprehend about the subject, and evaluates their performance (Gummer and Shepardson, 2001). Alternative assessment with reliable, performance-based, realistic, constructivist and feasible features includes activities in which knowledge and skill are connected and knowledge is acquired in different learning environments. It teaches students to be aware of their own ideas and to evaluate themselves by allowing students to analyze their own learning styles. In other words, alternative assessment provides flexible and meaningful learning experiences that take into consideration the learning styles of the students. From this aspect, it may be distinguished from standardized assessment techniques (Korkmaz, 2006).

Alternative assessment techniques enable students to be evaluated multi-dimensionally as they offer students multiple evaluation opportunities during which to display their knowledge, skills and attitudes (MEB, 2005). Additionally, alternative assessment assists teachers in creating a motivating learning environment that fits each student's learning needs and learning style, follows individual student achievement, and creates an atmosphere that takes into consideration students' self-assessment of their own learning process (Greenstein, 2010).

There have been many primary studies on alternative assessment techniques in Turkey. Even though the frequency of use of these techniques differs according to the subject matter (Yazici and Sozbilir, 2014), the studies have asserted that portfolios, peer assessment, diagnostic-branched trees, structured grids (Buyuktokatli and Bayraktar, 2014; Yazici and Sozbilir, 2014) and self-assessment (Karakus, 2010; Kosterelioglu and Celen, 2016) are the least-used techniques. However, the literature focuses on the positive effects of these techniques on students.

It is important that teachers use the assessment techniques recommended in their curricula to evaluate their students and their teaching activities. The current curriculum suggests that learners should be assessed in a way that will open up all-round and high-level thinking skills, and for this it provides teachers with assessment tools to evaluate students from every aspect. However, the studies (Dos, 2016; Gerek,

2006; Gelbal and Kelecioglu, 2007) show that the teachers who are unfamiliar with the curricula act with suspicion towards these techniques and view them as difficult to apply.

Many studies on the effectiveness of alternative assessment techniques have been carried out. However, no study found in either national or international literature examined the effects of alternative assessment techniques on a large scale or determined which techniques proved most effective on achievement. Accordingly, this study was designed to review the literature regarding alternative assessment that has recently gained popularity in Turkey. Data were derived from the primary studies, and the findings were combined through a meta-analysis underlying this research. Thus, calculating the effect size of the primary studies, which have investigated the impact of alternative assessment on academic outcomes, allows for the discussion of which assessment techniques are most effective.

In light of these facts, and seeing the need for this extensive review in the Turkish assessment context, the following research questions were designed for the present meta-analysis:

1. What are the effects of alternative assessment techniques on student achievement?

2. How do various alternative assessment techniques (e.g., portfolio, self-assessment) moderate the overall average effect size?

3. How do demographic features of the studies (i.e., subject matter and school level) moderate this overall effect?

## Method

*Research Design*

The current study primarily aimed to examine the impact of alternative assessment techniques on academic achievement. In line with this purpose, a meta-analysis method was applied in this study. Meta-analysis is a statistical procedural method used to interpret, synthesize and combine the experimental findings of the primary studies on specific research (Wolf, 1986). This study was designed around Cooper's easy-to-follow seven steps for conducting a systematic review; (1) formulating the problem, (2) searching the literature, (3) gathering information from studies, (4) evaluating the quality of studies, (5) analyzing and integrating the outcomes, (6) interpreting the data, and (7) presenting the results (Cooper, 2010).

*Research Instruments and Procedures*

Based upon the problem of this research, extensive literature review was designed to identify the primary studies. Key words used in this review primarily consisted of "alternative assessment", "portfolio", "grid", "diagnostic tree", "peer assessment", "self-assessment" and their variations in Turkish. The following electronic databases were among the sources examined: CoHE National Dissertation Center, ERIC, PsycINFO, ASOS social sciences index and many journals of Education Faculties in

Turkey, in addition to Google web and scholar in search of conference proceedings. The primary studies were collected by regularly reviewing the databases up to August 2014, and they were selected for inclusion in the analysis. To be included, a study had to meet the following criteria:

- Address the impact of alternative assessment techniques on students' achievements,

- Contain at least two independent samples, with pretest-posttest experimental or quasi-experimental design,

- Contain sufficient statistical information to extract effect size,

- Be administered in Turkey,

- Be published between 2004 and August 2014.

As the sampling of a study must consist of at least 10 students for each group to ensure the approximate normal distribution of Cohen's d effect size (Hedges and Olkin, 1985), the studies carried out with smaller samples were not included in this analysis. In light of Lipsey and Wilson's (2001) suggestions, a coding form which included both statistical and theoretical data was developed with regard to transforming the features of all studies included in this meta-analysis into the categorical variables.

For the interrater reliability of the coding form, about 25% (n=6) of the included articles were randomly selected, and they were independently rated and coded by two researchers. The forms were compared using the [agreement / (agreement + disagreement) x 100] formula (Miles and Huberman, 1994), and the reliability of intercoders was determined to be 98%. The disagreements were discussed until they were solved and corrected on the form.

*Research Sample*

Subsequent to coding the studies, out of 172 theses and dissertations, 68 articles and conference papers, 26 studies (36 effect sizes) which met the criteria were identified as the sample of this meta-analytic study.
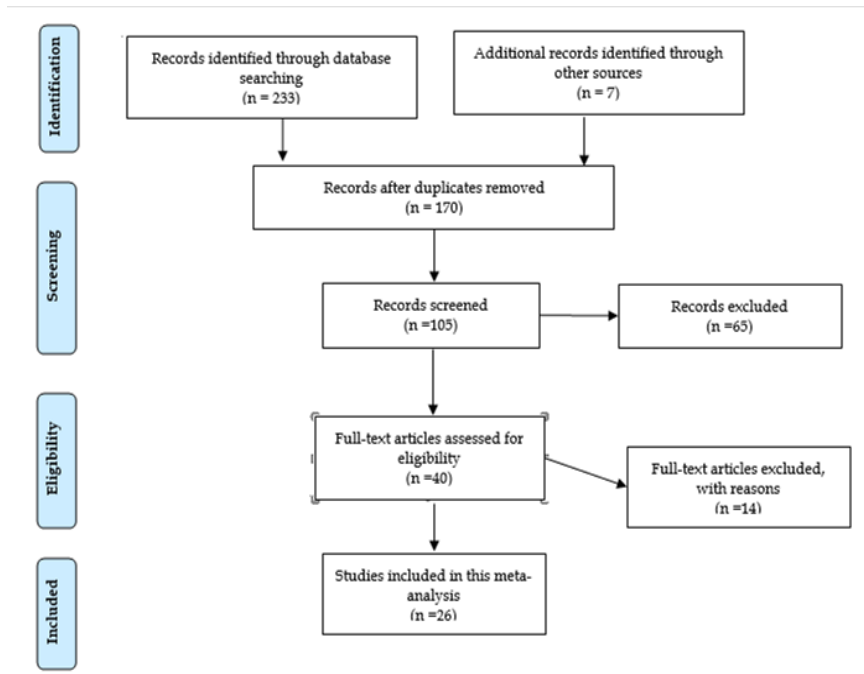
**Figure 1.** Flow chart of literature review

*Data Analysis*

The current study uses '*study effect*' meta-analysis for the analysis of the data. This method is used for group differences that occur when the arithmetical mean values of the dependent variables of each study included in meta-analysis were not obtained using the same scale (Lipsey and Wilson, 2001; Cohen, 1992). The aim of this method is to calculate the difference between the mean values of the control and experimental groups in experimental studies, represented by the formula d= (Xe-Xc)/SD (Hunter and Schmidt, 2004). The "d" value obtained represents the effect size and forms the basis for meta-analysis. In this study, the experimental group is the group to which one of the alternative assessment techniques was administered, and the control group is the one which was assessed in a traditional way. As a result, if the calculated effect size is positive, it is interpreted to be effective for alternative assessment or, if it is negative, to be effective for traditional assessment.

According to Wolf (1986), if the effect sizes of a range of independent studies are statistically significant (homogeneous), these studies may be stated to test the same hypothesis. In this case, if they are heterogeneous (statistically insignificant), it is conceivable whether each study tests the same hypothesis or not. In this paper, after extracting the effect size of each study, Q statistic suggested by Cochran was used to test the homogeneity of effect sizes. Under the fixed effect model, it was revealed that

Q value exceeded critical value. For this reason, the analysis was carried out again under the random effect model. I² test was also used to determine the degree of heterogeneity. Moderator variables were analyzed to explain the basis of heterogeneity. Comprehensive Meta-Analysis V2 (CMA) Software was used for all data analysis.

## Results

In this paper examining the impact of alternative assessment techniques on student academic achievement, the characteristic features and effect sizes of the studies have been determined by studying the samples, standard deviations and means of 26 studies. The number of students in the studies included in the meta-analysis is 2256, 1120 of which are in the experimental groups and 1136 of which are in the controlled groups. Descriptive features of the studies included in the analysis are presented in Table 1.

**Table 1**

*Descriptive Analysis of the Included Studies in Terms of Variables*

| Variables | Frequency (f) | Percentage (%) |
|---|---|---|
| School level | | |
| Primary | 15 | 57.5 |
| Secondary | 7 | 26.9 |
| Undergraduate | 4 | 15.4 |
| Subject matter | | |
| Science and Technology | 12 | 46.2 |
| Math | 3 | 11.5 |
| English | 4 | 15.4 |
| Other | 7 | 26.9 |
| Alternative Assessment Technique | | |
| Self-assessment | 1 | 2.7 |
| Peer assessment | 2 | 5.6 |
| Self- and peer assessment | 3 | 8.3 |
| Portfolio | 24 | 66.7 |
| Grid | 2 | 5.6 |
| Diagnostic branched tree and structured grid | 4 | 11.1 |

As seen in Table 1, most studies were carried out at the primary level (57.5%), and the least were at the undergraduate level (15.4%). Twelve studies (46.2%) were conducted in Science and Technology courses. Portfolios (66.7%) represented the most-used technique in the included studies. Of seven studies in which more than one assessment technique was used, four studies (11.1%) made use of diagnostic branched tree and structured grid, three studies (8.3%) used self- and peer assessment techniques together.

To find the answer to the first research question, 'What is the impact of alternative assessment techniques on students' achievement?', the studies included in this meta-analysis were integrated together with standard error and variation in the common effect size. Figure 2 shows the descriptive statistics associated with 36 effect sizes from 26 studies. The study names are presented on the left of the figure. The statistics for these 36 effect sizes, such as Hedges g, the standard error and the variance are placed in the center. On the right side of the figure, a graphic called a 'Forest plot' is presented. The effect size for each study is illustrated as a dot. The lines display the width of the confidence interval for each study. Confidence intervals spanning 0.0 on the distribution are considered to be insignificantly different from zero.

| Studyname | Hedges's g | Standard error | Variance |
|---|---|---|---|
| Yurdabakan ve Cihanoglu-a | 0,633 | 0,334 | 0,112 |
| Yurdabakan ve Cihanoglu-b | 0,939 | 0,344 | 0,118 |
| Olgun | 1,053 | 0,259 | 0,067 |
| Kaya-a | 0,407 | 0,365 | 0,133 |
| Kaya-b | 0,440 | 0,344 | 0,118 |
| Ozcan | -0,200 | 0,171 | 0,029 |
| Kirikkaya ve Vurkaya-a | 0,792 | 0,301 | 0,091 |
| Kirikkaya ve Vurkaya-b | 0,838 | 0,309 | 0,096 |
| Kirikkaya ve Vurkaya-c | 0,620 | 0,310 | 0,096 |
| Bagci | 0,104 | 0,318 | 0,101 |
| Izgi-a | 2,327 | 0,405 | 0,164 |
| Izgi-b | 0,922 | 0,402 | 0,162 |
| Dogan | 0,214 | 0,126 | 0,016 |
| Yurttas | 1,070 | 0,273 | 0,074 |
| Memis | 0,018 | 0,245 | 0,060 |
| Turan | 0,677 | 0,319 | 0,102 |
| Gurel-a | -0,120 | 0,346 | 0,119 |
| Gurel-b | 0,345 | 0,359 | 0,129 |
| Menevse | 13,058 | 0,798 | 0,637 |
| Baris | 0,607 | 0,144 | 0,021 |
| Koroglu-a | 1,382 | 0,284 | 0,081 |
| Koroglu-b | 1,018 | 0,271 | 0,074 |
| Koc | 0,530 | 0,242 | 0,059 |
| Balaban-a | -0,309 | 0,226 | 0,051 |
| Balaban-b | 0,388 | 0,213 | 0,046 |
| Balaban-c | 0,772 | 0,369 | 0,136 |
| Balaban-d | 1,179 | 0,467 | 0,218 |
| Anahtarci | 1,333 | 0,353 | 0,125 |
| Ozek | 0,878 | 0,362 | 0,131 |
| Karamanoglu | -1,170 | 0,336 | 0,113 |
| Mihladiz | 0,542 | 0,189 | 0,036 |
| Okcu | 0,218 | 0,351 | 0,123 |
| Parlakyildiz | 1,969 | 0,335 | 0,112 |
| Gungor | 1,090 | 0,305 | 0,093 |
| Erdogan | 0,198 | 0,297 | 0,088 |
| Guven ve Aydogdu | 0,698 | 0,263 | 0,069 |
| | 0,842 | 0,154 | 0,024 |



*Figure 2.* Forest plot of meta-analysis and study-level statistics

As reflected by the Forest plot in Figure 2, the studies with the smallest confidence interval were Koc's (2010) and Dogan's (2012), whereas the one with the widest confidence interval was Menevse's (2012). Thirty-two effect sizes from the included studies were classified as positive; that is, 88.88% of the effect sizes reveal that the results are in favor of alternative assessment techniques. The summary statistics derived from 36 effect sizes are presented in Table 2.

**Table 2**

*Overall Weighted Average Random Effects and Fixed Effect Sizes and Homogeneity Statistics*

| Analytical models | N | Effect size | df | Q-total | I² | 95% Confidence interval Lower | Upper |
|---|---|---|---|---|---|---|---|
| Fixed effect | 36 | 0.550 | 35 | 397.980 | 91.2 | 0.463 | 0.637 |
| Random effects | 36 | 0.842 | | | | 0.540 | 1.144 |

Table 2 shows a fixed weighted average effect of g=0.550 and a random weighted average effect of g=0.842. Both the fixed and random weighted effect sizes are significantly greater than zero. The effect size is considered large by Cohen's standards. The Q statistics show that the distribution is significantly heterogeneous, and I-squared indicates that over 75% of variability in the distribution is between-study variance. Namely, variability in effect sizes exceeds sampling error. To explain this heterogeneity, moderator analysis was carried out.

In order to find an answer to the second research question, 'how do various alternative assessment techniques moderate the overall weighted effect size?', the included studies were classified into five categories in terms of alternative assessment techniques, such as peer assessment, self- and peer assessment, grid, portfolio and DBT and SG (diagnostic branched tree and structured grid). In accordance with these categories, the findings are presented in Table 3.

**Table 3**

*Moderator Analysis of Various Alternative Assessment Techniques (AAT)*

| Variable | k | Effect size | 95 % Confidence Interval Lower | Upper | Q_B | df | p |
|---|---|---|---|---|---|---|---|
| AAT | 35 | | | | 2.241 | 5 | 0.210 |
| Peer assessment | 2 | 0.423 | -0.998 | 1.844 | | | |
| Self- and peer assessment | 3 | 0.877 | -0.268 | 2.023 | | | |
| Grid | 2 | 0.629 | -0.736 | 1.994 | | | |
| Portfolio | 24 | 1.012 | 0.604 | 1.420 | | | |
| DBT and SG | 4 | 0.501 | -0.481 | 1.482 | | | |

As seen in Table 3, the learning environments in which portfolios are used have the largest effect size (d=1.012), and those with peer assessment have the smallest effect size (d=0.423). As Q value is smaller than the critical value ($Q_b < \chi^2$; p>.05), the Q-between is not significant for this variable, indicating that within chance they are equal.

The third research question, 'how do demographic study features moderate this effect size?' was formed to determine whether there is a significant difference between the effect sizes in terms of subject matter and study level. For subject matter analysis, some studies were excluded in this analysis, especially in subjects such as Computer, Chemistry, Social Science and Environmental Science, on which there are fewer studies. The findings are shown in Table 4.

**Table 4**

*Moderator Analysis of Demographic Study Features*

| Variables | k | Effect size | 95 % Confidence Interval | | $Q_B$ | df | p |
|---|---|---|---|---|---|---|---|
| | | | Lower | Upper | | | |
| *Subject matter* | 29 | | | | 2.661 | 2 | 0.264 |
| Science and Technology | 20 | 0.505 | 0.260 | 0.751 | | | |
| English | 6 | 0.861 | 0.409 | 1.313 | | | |
| Math | 3 | 0.905 | 0.251 | 1.559 | | | |
| *School level* | 36 | | | | 26.069 | 2 | 0.000 |
| Primary | 23 | 0.549 | 0.176 | 0.922 | | | |
| Secondary | 4 | 3.137 | 2.205 | 4.069 | | | |
| Undergraduate | 9 | 0.648 | 0.059 | 1.237 | | | |

According to the findings in Table 4, the studies conducted in Math demonstrated the largest effect size (d=0.905), and those in Science and Technology showed the smallest effect (d=0.505). However, as the Q statistical value indicates, the distribution of effect sizes is found to be homogenous. In other words, there is no significant difference in effect size in terms of subject matter ($Q_B$=2.661; *p*= 0.264). The findings concerning school level show that the largest effect has been found at the secondary level (d=3.137), while the smallest effect is at the primary level (d=0.549). As the Q value exceeds the critical value with two degree of freedom, the distribution of the effect sizes is seen as heterogeneous ($Q_B$=26.069, *p*=0.000). Accordingly, the effect of alternative assessment techniques on academic achievement significantly varies by school level.

*Publication Bias*

In order to examine the publication bias, a funnel plot was drawn in Figure 3. As seen below, it is generally symmetrical around the mean of distribution. Accordingly, there is no publication bias comprising the results of this meta-analytic review. To

support this, upon analyzing Rosental's fail-safe N, it has been found out that the fail-safe N is 2048, based on 36 effect sizes from 26 studies, with a z value of 14.90 and corresponding p-value of 0.00. What this means is that this analysis must include 2048 'null' studies for p-value to exceed .05; that is, 56.8 missing studies would be required for each effect size to equate to 'zero'.
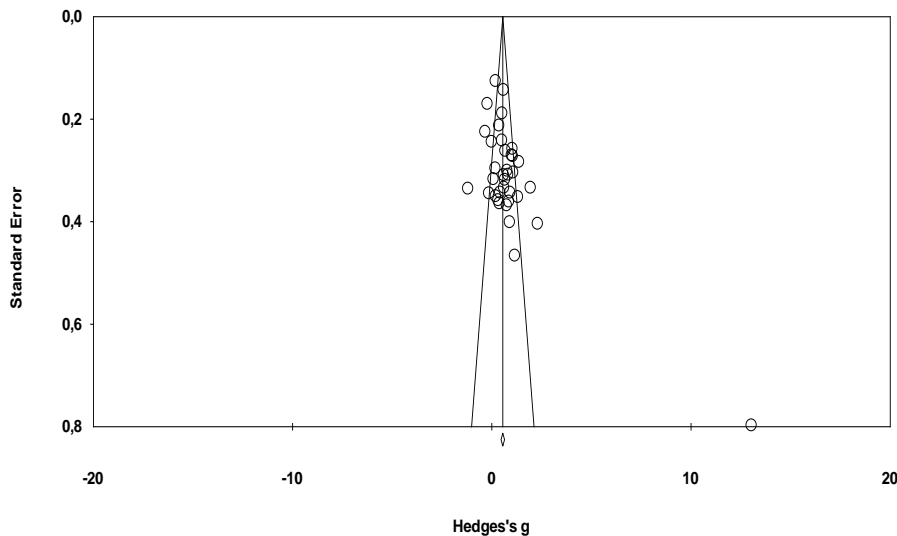


*Figure 3.* Funnel plot with effect sizes (horizontal axis) and standard errors (vertical axis)

## Discussion and Conclusion

In accordance with 36 effect sizes derived from 26 studies conducted in Turkey, it has been revealed that AAT has a positive impact on academic achievement, and this effect has been classified as large by Cohen's standards. It has been concluded that AAT is significantly impact on student achievement. This result is suggestive enough, in addition to being congruent with many studies (Anahtarci, 2009; Bagci, 2009; Baris, 2011; Barootchi and Keshavarz, 2002; Fenwick and Parsons, 1999; Gungor, 2005; Gurel, 2013; Guven and Aydogdu, 2009; Izgi, 2007; Kirikkaya and Vurkaya, 2011; Koroglu, 2011; Memis, 2011; Menevse, 2012; Olgun, 2011; Ozek, 2009; Parlakyildiz, 2008; Turan, 2013).

This meta-analysis examined whether the estimated effect size varies in terms of various alternative assessment techniques, subject matter and school level. Moderator analysis of various alternative assessment techniques revealed that the studies conducted using portfolios in class have the largest effect, the ones using self- and peer assessment combined have a larger effect, and those using only peer assessment technique have the smallest effect. However, the results show that the effect of various alternative assessment techniques insignificantly varies. As a consequence of this

meta-analysis, it has been found that portfolios are most frequently used in the primary grades and represent a larger contribution to the weighted average effect size than the other techniques (Anahtarci, 2009; Gungor, 2005; Karamanoglu, 2006; Mihladiz, 2007; Okcu, 2007; Ozek, 2009; Parlakyildiz, 2008). In this sense, it may be considered that the effect of other techniques on achievement is of importance and should be further explored.

The other moderator analysis was carried out on descriptive subject features such as subject matter and school level in which the primary studies were conducted. In terms of subject matter, the results demonstrated that the treatments in Mathematics courses have larger effect size, while those in Science and Technology courses have relatively low effect size. However, based on the findings, it has been stated that the effect of AAT on achievement does not differ in terms of subject matter. As for school level, the results show that interventions in the secondary schools have a large effect size, whereas those in the primary schools have a moderate effect size. On the other hand, it has been revealed that there is a significant difference in effect sizes in terms of school level, and the impact of AAT on achievement differs with regard to the school level. Winking (1997) stated that alternative assessment requires upper cognitive skills, so students can solve real-life problems. Additionally, it is known that what is effective in alternative assessment is that critical thinking and creativity develop over time (Eva, Cunnington, Reiter, Keane and Norman, 2004).

It is essential that meta-analytical results be interpreted with consideration to some of the limitations of primary studies. Some factors such as the experiment period, the experimenter's characteristics, and the difficulties in the experiments likely affect the results. According to Corcoran, Dershimer and Tichenor (2004), even though many teachers agree on the importance of using any kind of alternative assessment techniques, they state that it is difficult to administer them to the students.

In the current meta-analysis, the effect of alternative assessment techniques has been examined only in regard to student academic achievement. The effect of AAT on attitudes, anxiety and motivation may be investigated in future meta-analytic studies. In the literature review for this meta-analysis, it has been noted that there is a lack of study in some subject matter areas. Accordingly, the comparison of effect sizes in terms of subject matter has fallen short. More experimental / quasi-experimental studies may be conducted in other subject matters such as Turkish Language, History, and Chemistry. Considering the limited studies on AAT conducted in Turkey, a new meta-analytic study may be designed, including the studies on AAT from other countries.

## References

(The studies with asterisk indicate that the studies are included in this review.)

*Anahtarci, S. (2009). *Yapilandirmaci yaklasima dayali matematik programinda portfolyonun basariya ve matematige karsi tutuma etkisi.* [The influence of the portfolio on success and mathematics in a constructivist approach-based mathematics program] Yayimlanmamis yuksek lisans tezi. Trakya Universitesi Sosyal Bilimler Enstitusu, Edirne. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi.

*Bagci, I. (2009). *Ilkogretim sosyal bilgiler dersinde Turk tarihinde yolculuk unitesinin alternatif degerlendirme (portfolyo) ile islenmesinin ogrenci basarisi ve tutumuna etkisi.*[ The effects of student achievement and attitude of the unit 'voyage in the history of Turkish' with the evaluation of alternative processing (portfolio) in the lesson of social studies courses] Yayımlanmamış yüksek lisans tezi. Gazi Universitesi Egitim Bilimleri Enstitusu, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Balaban, M. (2010). *Ilkogretimde fen ve teknoloji dersinde ogretmen, ogrenci, veli isbirligi ile portfolyo uygulamasi.* [Teachers, students, parents cooperation in ensuring portfolio assessment in elementary school for science and technology lesson]. Yayimlanmamis yuksek lisans tezi. Ondokuz Mayıs Universitesi Fen Bilimleri Enstitusu, Samsun. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Baris, M. F. (2011). *Bir sosyal ag sitesine e-portfolyonun (elektronik gelisim dosyasi) entegre edilerek uygulanmasi ve sonuclarinin incelenmesi.* [Integration of the e-portfolio into a social network and analysis of results]. Yayimlanmamis doktora tezi. Trakya Universitesi Fen Bilimleri Enstitusu, Edirne. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Barootchi, N., & Keshavarz, M. H. (2002). Assessment of achievement through portfolios and teacher-made tests. *Educational Research*, 44 (39), 279–288.

Buyuktokatli, N., & Bayraktar, S. (2014). Fen egitiminde alternatif olcme degerlendirme uygulamaları. [Alternative assessment applications in science education] *Pegem Egitim ve Ogretim Dergisi, 4*(1), 103-126.

Cohen, J. (1992). Statistical power analysis. *Current Directions in Psychological Science*, *1*(3), 98-101.

Cooper, H. (2010). *Research synthesis and meta-analysis (A Step by Step Approach)* 4th edition. Thousand Oaks: SAGE Publication

Corcoran, A. C., Dershimer, L. E. & Tichenor, S. M. (2004). A teacher's guide to alternative assessment –taking the first steps. *The Clearing House*, 77 (5), 213–216.

Coruhlu, T.S., Er Nas, S. & Cepni, S. (2009). Fen ve teknoloji ogretmenlerinin alternatif olcme degerlendirme tekniklerini kullanmada karsilastiklari problemler:

Trabzon ornegi [Problems faced by science and technology teachers in using alternative assessment and evaluation techniques: Trabzon example].*Yuzuncu Yil Universitesi Egitim Fakultesi Dergisi,* V1 (1), 122-141.

*Dogan, S. (2012). K*avram haritasi ve yapilandirilmis grid tekniginin coktan secmeli testlerle karsilastirilmasi.* [A comparison of concept map and structural grid techniques with multiple choice tests]. Yayimlanmamis yuksek lisans tezi. Mersin Universitesi Eğitim Bilimleri Enstitusu, Mersin. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Dos, B. (2016). Analyzing the alternative assessment applications for the development of teaching: review of literature. *International Online Journal of Educational Sciences*, 8 (4), 215-228.

Duban, N. & Kucukyilmaz, E.A. (2008). Sınıf ogretmeni adaylarinin alternatif olcme degerlendirme yontem ve tekniklerinin uygulama okullarında kullanımına iliskin gorusleri. [Primary school student teachers' opinions regarding the use of alternative assessment methods and techniques in practice schools]. *Ilkogretim Online, 7*(3), 769-784.

*Erdogan, T. (2006). *Yabanci dil ogretiminde portfolyoya dayali degerlendirmenin ogrenci basarisi ve derse yonelik tutumlarina etkisi.* [Effect of portfolio-based assessment on students' achievement and attitudes in foreign language teaching]. Yayımlanmamis yuksek lisans tezi. Dokuz Eylul Universitesi Egitim Bilimleri Enstitusu, İzmir. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Erkus, A. (2006). *Sınıf ogretmenleri için olcme ve degerlendirme kavramlar ve uygulamalar.* [Concepts and practices on measurement and evaluation for primary school teachers] Ankara: Ekinoks Yayınları.

Eva, K., J.P.W. Cunnington, H. I. Reiter, D. R. Keane, & Norman, G. R. (2004). How can I know what I don't know? Poor self-assessment in a well-defined domain. *Advances in Health Sciences Education*, 9, 211–224

Fenwick, T. J. & Parson, J. (1999). A note on using portfolios to assess learning. *Canadian Social Studies*, 33(3), 90-92.

Gelbal, S. & Kelecioglu, H. (2007). Ogretmenlerin olcme ve degerlendirme yontemleri hakkındaki yeterlik algıları ve karsılastıkları sorunlar**.** [Teachers' perception of competence about the measurement and evaluation methods and problems they encounter] *Hacettepe Universitesi Egitim Fakultesi Dergisi,* 33, 135-145.

Gerek, O. (2006). *Sınıf ogretmenlerinin yeni ilkogretim programı hakkındaki gorus degerlendirme ve yeterlilikleri uzerine bir arastirma*. [A study on the primary school teachers' opinions, competences and evaluations about the new primary education program] Yayımlanmamis yuksek lisans tezi. Selcuk Universitesi Sosyal Bilimler Enstitusu, Konya. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Greenstein, L. (2010). *What teachers really need to know about formative assessment*. Alexandria, Virginia USA: ASCD.

Gummer, S. & Shepardson, D.P. (2001). Facilitating change in classroom assessment practice: issues for professional development. In Shepardson D.P. (ed.), *Assessment in science* (pp. 53-66) Springer, Dordrecht.

*Gungor, S. (2005). *Ortaogretim geometri dersi ucgenler konusunda oluşturmacı (constructivism) yaklaşıma dayalı elle yapılan materyaller ve portfolyo (portfolio) hazırlamanın ogrenciler uzerindeki etkilerinin incelenmesi.* [Examining the effects of preparing portfolio and hands on materials which is based on the constructivist approach, on students in instructing triangles subject in geometry lesson] Yayımlanmamış yüksek lisans tezi. Zonguldak Karaelmas Üniversitesi Sosyal Bilimler Enstitusu, Zonguldak. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Gurel, H. (2013). *İlköğretim 7. ve 8.sınıf fen ve teknoloji dersinde portfolyo uygulamasının öğrencilerin akademik başarı ve hatırlama düzeyine etkisi.* [The effect of using portfolio over students' academic success and remembering level for 7th and 8th grades for Science and Technology lesson at primary schools]Yayımlanmamış yüksek lisans tezi. Çanakkale Onsekiz Mart Üniversitesi Eğitim Bilimleri Enstitüsü, Çanakkale. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Guven, E. & Aydoğdu, M. (2009). Portfolyonun 6. sınıf fen ve teknoloji dersi vucudumuzda sistemler ünitesinde basarı ve kalıcılığa etkisi. [The effect of portfolio on the achievement and permanence in the unit 'system in our body' of 6th grade science and technology course] *Turk Fen Egitimi Dergisi, 6(2), 115-128.*

Hassan, A.K., Hill, R.A., & Reid, N. (2004). Ideas underpinning success in an introductory course in organic chemistry. *The Higher Education Chemistry Journal of the Royal Society of Chemistry*, 8 (2), 40-52.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. San Diego, CA: Academic Press

Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). California: Sage Publications.

*Izgi, U. (2007). *Fen egitiminde alternatif degerlendirme yaklasimlarının ogrencilerin sınav kaygısına ve ogrenmede kalıcılıga etkisi.*[The effect of alternative assessment attitudes in science lectures on the level of examination anxiety of students and the level of performance of learning] Yayimlanmamis yuksek lisans tezi. Hacettepe Universitesi Sosyal Bilimler Enstitusu, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Johnstone, A.H., Bahar, M. & Hansell, M.H. (2000). Structural communication grids: a valuable assessment and diagnostic tool for science teachers. *Journal of Biological Education*, 34 (2), 87-89.

Kablan, Z.,Topan, B. & Erkan, B. (2013). Sınıf ici ogretimde materyal kullaniminin etkililik duzeyi: Bir meta-analiz calisması. [The effectiveness level of material use in classroom instruction: a meta-analysis study] *Kuram ve Uygulamada Egitim Bilimleri,* 13 (3), 1629-1644.

Karahan, U. (2007). *Alternatif olcme ve degerlendirme metotlarından grid, tanilayici dallanmis agac ve kavram haritalarının biyoloji ogretiminde uygulanması,* [Application of alternative measurement and evaluation methods that are grid, diagnostic tree and concept maps within biology education] Yuksek Lisans Tezi, Gazi Universitesi Egitim Bilimleri Enstitusu, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Karakus, U.,& Ozturk Demirbas, Ç. (2011). Coğrafya öğretmenlerinin ölçme ve değerlendirme araçlarını kullanımı. [The use of measurement and evaluation tools by geography teachers] *Milli Eğitim Dergisi 189,* 71- 81.

Karakus, F. (2010). Ortaöğretim matematik dersi öğretim programında yer alan alternatif ölçme ve değerlendirme yaklaşımlarına yönelik öğretmen görüşleri. [Teacher views on alternative assessment and evaluation approaches in secondary school mathematics curriculum] *Türk Eğitim Bilimleri Dergisi, 8(2),* 457-488.

*Karamanoglu, S. S. (2006). *İlköğretim öğrencilerinin fen başarılarının değerlendirilmesinde sorgulama programının kullanılması: portfolyo.* [Assessing primary students success in science courses via primary years program: Portfolio] Yayımlanmamış yüksek lisans tezi. Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Kaya, S. (2013). *Isbirlikli ogrenme ve akran degerlendirmenin akademik basari, bilisustu yeti ve yardim davranislarina etkisi.*[Effects of cooperative learning and peer assessment on academic success, metacognitive awareness and helping behaviors] Yayımlanmamış yuksek lisans tezi. Cumhuriyet Universitesi Egitim Bilimleri Enstitusu, Sivas. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Kirikkaya, E. B. & Vurkaya, G. (2011). The effect of using alternative assessment activities on students' success and attitudes in science and technology course. *Educational Sciences: Theory and Practice*, *11*(2), 997-1004.

*Koc, A. (2010). B*ilgisayar okuryazarligi becerisi ediniminde e-portfolyo surecinin ogrenen performansina ve tutumlarina etkisi.*[The effect of e-portfolio process on learners' performance and attitudes in the process of computer literacy skill acquisition] Yayımlanmamış yuksek lisans tezi. Fırat Universitesi Sosyal Bilimler Enstitusu, Elazıg. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Korkmaz, I. (2006). Yeni ilkogretim programinin ogretmenler tarafindan degerlendirilmesi. [Evaluation of new primary education program by

teachers] *Ulusal Sınıf Ogretmenligi Kongresi,* Cilt II (s.249-260). Ankara: Kök Yayıncılık.

Kosteklioglu, I. & Celen, U. (2016). Oz degerlendirme yonteminin etkililiginin degerlendirilmesi. [Evaluation of the effectiveness of self-assessment method]. *Elementary Education Online*, 15(2), 671-681.

*Koroglu, U. M. (2011). İ*ngilizce ogretiminde proje tabanlı ogrenme ve portfolyo degerlendirme uygulamalarının lise ogrencilerinin başarısına etkisi.* [The effects of project-based and portfolio based learning on high school students' reading and writing skills in English]. Yayimlanmamis yuksek lisans tezi. Uludag Universitesi Egitim Bilimleri Enstitusu, Bursa. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Lipsey, M., & Wilson, D. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.

*Memis, E. K. (2011). A*rgumantasyon tabanli bilim ogrenme yaklasiminin ve oz degerlendirmenin ilkogretim ogrencilerinin fen ve teknoloji dersi basarisina ve basarinin kaliciligina etkisi.* [Effects of the argumentation based science learning approach and self-evaluation on primary school students' science and technology course achievement and retention of the achievement] Yayimlanmamis doktora tezi. Ataturk Universitesi Egitim Bilimleri Enstitusu, Erzurum. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Menevse, E.B. (2012). *Portfolyo uygulamasinin ogretmen adaylarinin akademik basarilarina etkisi*. [Effects of teachers academic achievement application portfolio]. Yayimlanmamis yuksek lisans tezi. Necmettin Erbakan Universitesi Egitim Bilimleri Enstitusu, Konya. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Mihladiz, G. (2007). *Ilkogretim fen bilgisi ogretiminde portfolyo uygulamasinin ogrencilerin akademik basarilarina ve derse yonelik tutumlarina etkisi.* [The effect of application of portfolio in primary school science teaching on the students' academic achievements and attitudes towards the lesson] Yayimlanmamis yuksek lisans tezi. Mugla Universitesi Fen Bilimleri Enstitusu, Mugla. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, California: Sage.

MEB (Milli Egitim Bakanligi) (2005). *Ilkogretim Turkce dersi ogretim programi*. [The curriculum of primary school Turkish course] Ankara: MEB Yayinlari.

*Okcu, Y. (2007). *Matematik egitiminde portfolyo degerlendirme.* [Portfolio assessment in mathematics education]. Yayimlanmamis yuksek lisans tezi. Balikesir Universitesi Fen Bilimleri Enstitusu, Balıkesir.

*Olgun, M. (2011). *Ilkogretim 4. sinif fen ve teknoloji dersinde oz ve akran degerlendirme uygulamalarinin yer aldigi isbirlikli ogrenme yonteminin ogrencilerin basari, tutum*

*ve bilisustu becerilerine etkisi.* [The effect of cooperative learning method including self and peer assessment applications on student's success, attitude and metacognitive skills in primary 4th grade science and technology lesson]. Yayimlanmamis yuksek lisans tezi. Dokuz Eylul Universitesi Egitim Bilimleri Enstitusu, Izmir. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Ozcan, F. (2011). *9. sinif ogrencilerinin kimyasal degisimler konusundaki kavramsal basarilari uzerine alternatif degerlendirme tekniklerinin etkisi.* [The effect of the alternative assessment techniques to first grade of high school students' conceptual success on the subject of the chemical changes]. Yayimlanmamis yuksek lisans tezi. Gazi Universitesi Egitim Bilimleri Enstitusu, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Ozdemir, S.M. (2010). Ilkogretim ogretmenlerinin alternatif olcme ve degerlendirme araclarina iliskin yeterlikleri ve hizmet içi egitim ihtiyaclari. [Competencies of elementary school teachers on alternative assessment tools and in-service training needs].*Turk Egitim Bilimleri Dergisi,* 8(4), 787-816.

*Ozek, S. (2009). *Portfolyo uygulamasinin ilkogretim ogrencilerinin Ingilizce dersinde okudugunu anlama duzeylerine ve derse yonelik tutumlarina etkisi.* [The effect of portfolio application on primary school students? reading comprehension skills in English and their attitudes towards English]. Yayimlanmamis yuksek lisans tezi. Ankara Universitesi Egitim Bilimleri Enstitusu, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Ozsevgec, T., & Karamustafaoglu, S. (2010). Ogretmen adaylarinin geleneksel ve yapilandirmaci olcme-degerlendirme yaklasimlarina yonelik profilleri. [Profiles of teacher candidates for traditional and constructive assessment and evaluation approaches]. *Turk Egitim Bilimleri Dergisi,* 8(2), 333-354.

*Parlakyildiz, B. (2008). *Portfolyoya dayali degerlendirmenin universite ogrencilerinin akademik basarilarina ve bilissel yasam becerilerine etkisi.* [The impact of portfolio-based assessment on the academic accomplishment and cognitive life skills of university students] Yayımlanmamış doktora tezi. Gazi Üniversitesi Eğitim Bilimleri Enstitüsü, Ankara. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

*Turan, M. A. (2013). *Ilkogretim besinci sinif fen ve teknoloji dersinde portfolyo uygulamasinin ogrenci basarisi ve ogrenmenin kaliciligi ızerine etkisi.*[The effectiveness of the portfolio method on the students' academic success and retention outcomes in fifth-grade science classrooms] Yayimlanmamis yuksek lisans tezi. Marmara Universitesi Egitim Bilimleri Enstitusu, Istanbul. Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi

Winking, D. (1997). *Critical issue: Ensuring equity with alternative assessments* [online document]. NCREL (North Central Regional Educational Laboratory), Oak Brook: IL. Retrieved January 15, 2015, from http://www.ncrel.org/sdrs/areas/methods/assment/as800.htm

Wolf, F. M. (1986). *Meta-analysis: Quantitative methods for research synthesis*. London: Sage.

Yaman, S. (2011). Teachers' perceptions about their measurement and evaluation practices in science and technology course, *İlköğretim Online*, 10(1), 244-256.

Yazici, F. & Sozbilir. M. (2014). Elementary 6-8 grades teachers' frequency of use and their level of adequacy in assessment and evaluation methods: Erzurum sampling. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education*, (8), 2, 164-196.

Yesilyurt, E. (2012). Fen ve teknoloji dersinde kullanilan olcme degerlendirme yontemleri ve karsilasilan guclukler. [Measurement and evaluation methods used in science and technology lessons and difficulties encountered] *Turkish Studies - International Periodical for the Languages, Literature and History of Turkish or Turkic*, 7(2), 1183-1205.

## Alternatif Değerlendirme Tekniklerinin Etkililiğinin Meta-Analizi

**Atıf:**

## Özet

*Problem Durumu:* Öğretmenlerin, öğrencilerini ve kendi öğretim faaliyetlerini değerlendirmede öğretim programlarında tavsiye edilen ölçme değerlendirme tekniklerini kullanmaları önem taşımaktadır. Türkiye'de 2004 eğitim reformu ile yenilenmekte olan öğretim programları öğrencilerin, çok yönlü ve üst düzey düşünme becerilerini açığa çıkarıcı bir şekilde değerlendirilmesi gerektiğini öne sürmekte ve geleneksel değerlendirme yöntemleriyle birlikte alternatif ölçme ve değerlendirme tekniklerinin kullanılmasını önermektedir. Bu ölçme araçlarının etkililiği programa yabancı olan ve bu araçları kullanan öğretmenler tarafından şüphe ile karşılanmakta ve bu durumda araçların uygulanması da oldukça güçleşmektedir. Alternatif değerlendirme tekniklerinin etkililiği ile ilgili günümüze kadar pek çok araştırma yapıldığı ve hala yapılmakta olduğu görülmektedir. Fakat hem alternatif değerlendirme tekniklerinin etkililiğini geniş ölçekte ortaya koyan hem de hangi değerlendirme tekniğinin akademik başarı üzerinde daha etkili olduğunu gösteren bir çalışmaya alan yazında rastlanmamıştır. Bu çalışma, son on yılda ülkemizde yapılan program değişikliği sebebiyle popülerliği gittikçe artan alternatif değerlendirme ile ilgili alan yazını gözden geçirmek için planlanmıştır. Bireysel araştırmalardan elde edilen veriler ve bulguların meta-analiz yöntemiyle birleştirilmesi araştırmanın temelini oluşturmaktadır. Bu sayede alternatif yöntemlerle değerlendirilen akademik

başarının etki büyüklüğüne ulaşılması ve hangi değerlendirme tekniğinin daha etkili olduğunu tartışmaya imkân sağlayabilecektir.

*Araştırmanın Amacı:* Bu araştırma, alternatif değerlendirme tekniklerinin öğrencilerin akademik başarılarına etkisini ve akademik başarının kullanılan alternatif değerlendirme tekniği türlerine, tekniğin uygulandığı ders türüne ve öğretim kademesine göre farklılaşıp farklılaşmadığını meta-analiz yöntemiyle araştırmayı hedeflemiştir.

*Araştırmanın Yöntemi:* Bu çalışmada alternatif değerlendirme tekniklerinin akademik başarı üzerindeki etkililiği üzerine yapılmış birincil çalışmaların etki büyüklüklerinin hesaplanması, birleştirilmesi ve yorumlanması amacıyla meta-analiz yöntemi kullanılmıştır. Bu anlamda öncelikle ilgili birincil çalışmalara ulaşmak için Türkiye'de alternatif değerlendirme tekniklerinin eğitim programlarına dâhil edildiği yıl olan 2004 yılı itibariyle yapılmış çalışmaların alan yazın taraması yapılmıştır. Bu taramada "alternatif değerlendirme", "portfolyo", "yapılandırılmış grid", "tanılayıcı dallanmış ağaç", "akran değerlendirme", "öz değerlendirme" gibi anahtar sözcükler ile YÖK Ulusal Tez Merkezi, ERIC, PsycINFO, ASOS sosyal bilimler indeksi gibi veri tabanları ile üniversitelerin eğitim fakültesi dergileri taranmıştır. İlgili alan yazın çalışmasından sonra (1) alternatif değerlendirme tekniğinin öğrencilerin akademik başarısı üzerindeki etkisini inceleyen, (2) ön-test son-test deneysel ya da yarı deneysel en az iki bağımsız örneklem içeren, (3) etki büyüklüğü hesaplamaları için gereken istatistiksel veriler içeren, (4) alternatif değerlendirme tekniğini Türkiye'de uygulamış olan ve (5) 2004 – Ağustos 2014 yılları arasında yapılmış olan 26 çalışma analize dâhil edilmiştir. Bu çalışmalar araştırmacı tarafından geliştirilen ve % 98 oranında değerlendiriciler arası güvenirliğin tespit edildiği bir kodlama formuna işlenmiştir. . Bu çalışmada her çalışmanın etki büyüklüğü hesaplandıktan sonra etki büyüklüklerinin homojenliği testi için Cochran tarafından önerilen (k-1) serbestlik dereceli Ki-Kare heterojenlik testi (Q istatistiği) kullanılmıştır. Heterojenlik derecesinin belirlenmesi için ise $I^2$ testi seçilmiştir. Meta-analizde sabit etkiler modeli uygulandığında elde edilen; grup içi, gruplar arası ve toplam heterojenlik değerlerinin kritik değerlerden yüksek olduğu ortaya çıkmıştır. Bu nedenle rastgele etkiler modeli kullanılarak etki büyüklükleri tekrar hesaplanmıştır. Heterojenliğin kaynağının tespiti için ise bazı kategorik değişkenler için moderatör analizi yapılmıştır. Yayın yanlılığın olup olmadığının test edilmesi için huni diyagramı oluşturulmuş ve Rosental'ın korumalı N testi ile sonuç desteklenmiştir.

*Araştırmanın Bulguları:* Çalışmaların etki büyüklüklerinin heterojen yapıda ($Q>x^2$, $p< 0.05$) ve çalışmalar arasındaki heterojenlik miktarının ($I^2=91$) yüksek çıkması sonucunda yapılan moderatör analizi heterojenlik kaynağının birincil çalışmaların yapıldığı öğrenim kademeleriyle ilişkili olduğu görülmüştür. Diğer bir deyişle etki büyüklükleri çalışmaların yapıldığı ders türlerine göre ve çalışmalarda kullanılan alternatif değerlendirme teknikleri türlerine göre farklılaşmazken öğrencilerin öğrenim kademelerine göre etki büyüklükleri arasında anlamlı bir farklılık olduğu ortaya çıkmıştır. Bulgular alternatif değerlendirme tekniklerinin öğrencilerin akademik başarısı üzerinde pozitif ve yüksek düzeyde bir etkiye ($d=0.84$) sahip

olduğunu ortaya koymuştur. Ayrıca, bu tekniklerin kullanılması öğrencilerin matematik dersindeki akademik başarıları üzerinde geniş bir etkiye sahip olduğu (.90) ve portfolyo kullanımının da (d=1.01) etkisinin kayda değer olduğu sonucuna ulaşılmıştır. Yapılan yayın yanlılığı analizi sonucunda, bu meta-analiz bulgularını çarpıtacak bir yanlılığın olmadığı elde edilen değerlerin yüksek güvenirlikte olduğu belirlenmiştir.

*Araştırmanın Sonuçları ve Önerileri:* Mevcut araştırmanın sonuçları, alternatif değerlendirme tekniklerinin öğrencilerin akademik başarısı açısından geleneksel değerlendirme tekniklerine oranla daha başarılı olduğunu göstermiştir. Buna ek olarak, alternatif değerlendirmenin etkililiği kullanılan değerlendirme tekniklerine ve ders türlerine göre anlamlı farklılık göstermediğinden farklı otantik değerlendirme tekniklerinin derslerde kullanılması öğrenci başarısını artırdığı söylenebilir. Ancak, bu tekniklerin etkililiği kullanıldığı öğrenim kademelerine göre anlamlı fark gösterdiği sonucuna ulaşılmıştır. Alternatif değerlendirmeler daha üst düşünme becerileri gerektirdiği için alt kademlerde kullanımında daha az etkili olduğu sonucuna varılmıştır. Bu tekniklerin özellikle ortaöğretim ya da yükseköğretimde kullanılmasının daha etkili olacağı söylenebilir. Bu meta-analiz çalışmada alternatif değerlendirme tekniklerinin etkililik düzeyi sadece akademik başarı açısından incelenmiştir. Yapılacak diğer meta-analiz çalışmalarında alternatif değerlendirme tekniklerinin tutum, kaygı ve motivasyon düzeyi açısından etkililiği araştırılabilir. Çalışmada meta-analiz için yapılan alan taramasında bazı derslere yönelik yeterli çalışmaya ulaşılamamıştır. Dolayısıyla ders türlerine göre karşılaştırmalarda bazı boyutlar eksik kalmıştır. Buna göre diğer dersler için yeni araştırmalar yapılması alan yazına katkı sağlayabilir.

*Anahtar Kelimeler:* Otantik değerlendirme, portfolyo, performans, etki büyüklüğü.

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# Problematic Internet Usage: Personality Traits, Gender, Age and Effect of Dispositional Hope Level*

Hicran CETIN GUNDUZ[1] Subhan EKSIOGLU[2] Sinem TARHAN[3]

| A R T I C L E   I N F O | A B S T R A C T |
|---|---|
| | **Purpose**: The aim of this study is to examine the effect of personality traits, gender, age and effects of dispositional hope level in problematic internet usage of university students. **Research Methods:** This paper is an example of a descriptive study, which presents the relationship between problematic internet usage of university students considering personality traits, gender, age and dispositional hope level. The study group consists of 376 students from different universities. Research data was collected by using the Problematic Internet Usage Scale, The Big Five Inventory, and the Dispositional Hope Scale. In the analysis of data, parametric tests were used. |

**Findings**: It has been observed that as neuroticism increases, excessive usage also increases; as conscientiousness increases, excessive usage of the internet decreases. As openness, extraversion and neuroticism increase, the effects of negative results of internet usage increase; as conscientiousness increases, the effects of negative results of internet usage decrease. At the same time, it can be said that as hope levels increase, the negative effects of internet usage decrease. All of these results can be interpreted as variables, except being an extravert does not have a practical value. **Implications for Research and Practice**: Based on the results, it was suggested that evaluation of results related to the studies made with high school students and adults will contribute to the field. In future studies, relationships between different usage fields of internet and problematic internet usage can be examined. The results would be helpful for prevention and intervention programs.

*[1] Corresponding Author: Hicran CETIN GUNDUZ, Baskent University, TURKEY, hicrancetin@gmail.com, **ORCID:** http://orcid.org/0000-0002-5899-9772.

[2] Sakarya University, TURKEY, eksioglusubhan@gmail.com, **ORCID:** http://orcid.org/0000-0002-7411-6482.

[3] Bartın University, TURKEY, tarhansinem@gmail.com, **ORCID:** http://orcid.org/0000-0001-7297-2499.

## Introduction

The internet is extensively used throughout the world. It has become an essential part of our lives today, especially among adolescents and youth (Panicker & Sachdev, 2014). Children and adolescents use the internet for socializing and for leisure activities (watching movies and television programs, listening to music and playing online games). The negative impact of the internet usage on individuals and their lives is often underestimated (Chang & Hung, 2012). Internet usage can be evaluated as individuals' mechanism for stating their emotions, being the person that they want to be, acting as a mediator to reach several opportunities, learning about the world and opening up to the world. However, it can transform into an addictive instrument in excessive usage situations. Internet addiction has become a health problem throughout the world (Wang et al., 2013). Increasingly, the problem status of individuals om different developmental periods are identified more in relation with the increasing usage of internet and related tools. Thus, the need for research on problematic internet usage becomes significant with regard to the prevention and intervention programmes.

There is no standard in the literature for the concepts of internet addiction or problematic internet usage. Significant behaviours related to internet usage present such concepts as internet addiction, internet addiction deformity and pathological internet usage (Chou, Condron, & Belland, 2005). The term "internet addiction" is used in some of studies (Breslau, Aharoni, Pedersen, & Miller, 2015). Internet addiction was first recognized by Goldberg (1995) and Young (1996) and is defined as compulsiveness related to excessive internet usage and establishment of a nervous and pessimistic emotion situation in case of not having internet (as cited in Mitchell, 2000). While silence, change in emotion situation, tolerance (increasing period of usage ) deprivation symptoms, conflict and recurrence elements draw attention in internet addiction (Griffiths, 2000a; Griffiths, 2000b), pathological internet usage should include at least three factors, such as excessive game playing, online sexual activities, sending e-mails and texting behaviours (Young, 1999).

As defined by Beard (2005) and Kim and Davis (2009), internet addiction is uncontrolled usage of the internet to create psychological, social or/and working problems in the life of the individual. Similar to this definition, problematic internet usage is defined as not being able to control internet usage, resulting in stress problems in daily life and experiencing functional defects (as cited in Shapira, Goldsmith, Keek Jr, Khosla, & McElroy, 2000). Problematic internet usage can be seen as an impulse control defect that displays itself with an increasing tension and excitation situation before the activity and a relaxing situation after completing the behaviour (Shapira et al., 2003). Individuals with stories of addiction or impulse control in their past are in the risk group for problematic internet usage (Yellowlees & Marks, 2007). This can exist at any age, social, economic or educational level (Beard, 2005; Beard & Wolf, 2001). In this context, problematic internet usage has an important effect on one's life.

It has been found that problematic internet usage correlates with variables such as depression (Chen & Lin, 2016; Ga´mez-Guadix, 2014; Moreno, Jelenchick, & Christakis,

2013; Moreno, Jelenchick, & Breland, 2015; Ostovar et al., 2016; Van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008; Shapira, Goldsmith, Keck, Khosla, & McElroy, 2000), cognitive distortion between individual and life satisfaction, (Odaci & Berber Celik 2013; Cao, Sun, Wan, Hao, & Tao, 2011), loneliness (Ang, Chong, Chye, & Huan, 2012; Kraut et al., 1998; Ostovar et al., 2016; Skues, Williams, Oldmeadow, & Wise, 2016), well being (Chen, 2012; Mei, Yau , Chai, Guo, & Potenza, 2016), online gambling (Tsitsika, Critselis, Janikian, Kormas, & Kafetzis, 2011; Yau et al., 2014), substance use  (Rücker, Akre, Berchtold, & Suris, 2015), and low empathy (Melchers, Chen, Zhang, & Montag, 2015). Furthermore, according to Lanchman et al. (2016), gender is a significant variable in terms of problematic internet usage. Internet addiction has been studied using several variables.

While one study conducted among female university students  points out a relationship between depression and problematic internet usage (Moreno et.al. 2015), another study presents a relationship between low well-being and problematic internet usage (Casale, Lecchi and Fioravanti, 2015).  Yu and Shek (2013) stated in their longitudinal study that problematic internet usage by male adolescents is more commonplace than among female adolescents. Tsitsika et al. (2011) stated that the most meaningful independent variable related to problematic internet usage is online gambling. When studies with problematic internet usage in Turkey were examined, Ceyhan and Ceyhan (2008) in a study conducted among 283 undergraduate students found that individuals whose loneliness level was high used the internet and e-mail more than other students. Oktan (2015a) examined the relationship between doing harm to oneself and engaging in risk behaviour with problematic internet usage in his study. He studied 736 high school students and found a meaningful relationship between problematic internet usage and risk taking and harming oneself.

According to the conducted research, while the internet usage period, grade and school type have been important predictors of problematic internet usage for high school students (Ceyhan, 2011), the most important predictor of problematic internet usage for university students is internet usage with the aim of "building social relationships with the people they do not know" (Ceyhan, 2010). Moreover, belonging, life-satisfaction, achievement and identity issues are significant predictors for problematic internet usage in adolescents (Balkaya Cetin & Ceyhan, 2015). Such variables as the use of the internet for social and entertainment purposes and gender predict problematic internet use (Babacan Gumus, Sipkin, Tuna, & Keskin, 2015). Furthermore, while problematic internet use is predicted positively by impulsivity (Eroğlu, 2016), students' departments, using the internet for social interaction and emotional intelligence are also predictors of problematic internet use (Ancel, Acikgoz, & Yavas Ayhan, 2015). At the same time, there are studies emphasizing the relationships with identity status (Ceyhan, 2010), attitude related to internet usage (Sargin, 2013), time spent on the internet (Durak & Senol-Durak, 2013; Oktan, 2015b), emotional intelligence, self-respect, (Reisoglu, Gedik, & Goktas, 2013), having a computer (Sevindik, 2011; Sirakaya & Seferoglu, 2013) anger stating styles (Ata, Akpinarr, & Kelleci, 2011), loneliness (Cagir, 2010; Odaci & Kalkan, 2010), social anxiety (Cuhadar, 2012; Zorbaz, 2013), depression (Alparslan, Soylu, Kocak, & Guzel,

2015; Odaci & Cikrikci, 2017; Tekinarslan, 2017) perceived social support, loneliness (Oktan, 2015b), life satisfaction (Berber Çelik & Odaci, 2013) psychological well-being and perceived social support of friends (Meral & Bahar, 2016; Uz Bas, Oz Soysal, & Aysan, 2016). In addition, it is observed that there is a significant relationship between problematic internet use level and gender (Ancel, Acikgoz, & Yavas Ayhan, 2015; (Berber Çelik & Odaci, 2013; Esitti, 2015; Oktan, 2015b).

When the literature was examined, a study searching for the relationship between problematic internet usage and personality features with hope has not been found. For this reason, the study findings are expected to provide information and shed light on the studies made on problematic internet usage. In this study, the relationship between problematic internet usage of university students with personality features, gender, age and dispositional hope level has been examined.

## Method

*Research Design*

This study has been conducted using a descriptive method with the aim of presenting the relationship between problematic internet usage of university students with personality traits, gender, age and dispositional hope level.

*Research Sample*

The study group in this research consists of 376 students studying for their bachelor's degree in the 2014-2015 academic years at Nevsehir Haci Bektas Veli University, Sakarya University and Bartin University. Of the participants, 250 (66.5%) were female, and 115 of the participants (30.6%) were male; 2.9% of the participants did not state their gender. Age ranges of the students were between 18-25, and 40.2% of them were in their first year (n= 151); 12.5% (n= 47) in their second year; 33.2% (n= 125) in their third year; and 14.1% (n= 53) in their fourth year.

*Research Instruments and Procedure*

Research data was conducted by using demographical information form, problematic internet usage scale (Ceyhan, Ceyhan, & Gurcan, 2007), The Big Five Inventory (Sumer & Sumer, 2005), and the Dispositional Hope Scale (Tarhan & Bacanli, 2015). A demographical information form was prepared by the researcher.

*The Problematic Internet Usage Scale* aims to determine problematic internet usage of university students. The scale was developed by Ceyhan, Ceyhan and Gurcan (2007). This scale contains negative effects of internet, social benefit/social conformity, and excess usage sub-scales. It is in the form of 5 Likert-type scales and includes 33 items. Inner coherency coefficient of the scale has been determined as ($\alpha$) 0.95; inner coherency coefficient for the negative effects of internet as 0.94; for social benefit/social conformity, 0.85, and for excess usage, 0.75.

*The Big Five Inventory* was developed by Benet-Martinez and John (1998) and it includes 44 items. The scale provides information of the sub-divisions of neuroticism,

extraversion, openness, agreeableness and conscientiousness. A Turkish version of the scale was developed by Sumer and Sumer (2005) in Turkey (as cited in Basim, Cetin, & Tabak, 2009). Cronbach alpha reliability values have been calculated as .79 for neurotic, .77 for extraversion, .76 for development, .70 for agreeableness and .78 for conscientiousness (as cited in Basim, Cetin, & Tabak, 2009). A five item Likert-type scale was used including "absolutely not participate", "not participate", "indecisive", "participate" and "absolutely participate" (Sumer, Lajunen and Ozkan, 2005).

*Dispositional Hope Scale.* This scale was developed by C.R. Snyder et al. (1991) with the aim of determining dispositional hope levels of individuals at 15 years old and above. The first Turkish version of the scale was adopted by Akman and Korkut (1993) (as cited in Tarhan & Bacanli, 2015). In this study, the Dispositional Hope Scale (DHS) adapted to Turkish by Tarhan and Bacanli (2015) has been used. Four of the twelve items in the scale relate to the dimensions of Alternative Ways of Thinking Dimension of hope (There are lots of ways around any problem) and Actuating Thinking Dimension (I meet the goals that I set for myself). One of these items belongs to the past, one to the moment we live in and one to the future. An additional four items are formed with fillers (I worry about my health). The individuals are requested to mark thereflection levels of their own situations in the items using an eight-item Likert type grading scale. While the scale is being scored, the points taken from Alternative Ways Thinking dimension and Actuating Thinking dimension sub-scales are summed up and the total score from the Dispositional Hope Scale is gathered. The lowest score from the scale is 8 and the highest is 64. It has been determined that the Cronbach alpha value of the Actuating Thinking component is .71-.76 and Cronbach alpha value of Alternative Ways of Thinking component is .63-.80. The total Cronbach alpha value is .74-.84.

*Data Analysis*

SPSS 22 was used in the analysis of the data. Before making hierarchic regression analysis, whether the variables have met the assumptions and scattering diagram of normal distributions, the Mahalonobis distance and the Cook's distance were examined by looking at z values. In addition, relationships between predicted variables (excessive usage which are sub-dimensions of problematic internet usage, negative effects of internet and social benefit/social conformity) and predictor variables (personality traits, gender, age and dispositional hope), and distributions of the scores were examined. It was observed that all scores were distributed normally in all scales. Missing data was examined before making the data analysis. Blank items were examined by EM algorithms and average value assignments were made.

As the first step of the analysis, personality traits, followed by gender and age variables and lastly the hope variable were added to the analysis. Predictor variables for every sub-dimension of problematic internet usage were attempted. At the end of the hierarchic regression, partial effect magnitude values for determining whether free variables have a practical meaning or not were determined. Information related to effect magnitudes can be provided by using partial correlation coefficients in regression analysis. (Berberoglu & Tansel, 2014). In addition, the power of predicting

the addictive variable of the models was evaluated by commenting on R²ch values of every model. R² (as cited in Ozsoy & Ozsoy, 2013), which is the regression coefficient for effect magnitudes of the models, was calculated.

## Results

*Prediction of Excessive Usage Sub-Dimension of Problematic Internet Usage Scale*

Correlation coefficients between average, standard deviation and variables related to predicted and predictor variables taking place in the research are given in Table 1.

**Table 1**

Correlation Matrix Showing the Relationships between Variables and Mean and Standard Deviation of the Dependent and Independent Variables

| | M | SS | Exces-sive Usage | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Excessive Usage* | 18.93 | 5.00 | | | | | | | | | |
| *Personality characteristics* | | | | | | | | | | | |
| *1 Openness* | 36.01 | 7.15 | -.10** | | | | | | | | |
| *2 Neuroticism* | 23.90 | 6.31 | .22* | -.15* | | | | | | | |
| *3 Extraversion* | 27.28 | 6.12 | -.03 | .40* | -.25* | | | | | | |
| *4 Agreeableness* | 34.17 | 5.50 | -.10** | .22* | -.19* | .06 | | | | | |
| *5 Conscientiousness* | 31.99 | 5.84 | -.35* | .29* | -.29* | .13** | .26* | | | | |
| *6 Sex* | 1.34 | .47 | .10 | -.05 | -.12* | .09** | -.14** | -.16* | | | |
| *7 Age* | 20.93 | 2.06 | -.07 | .07 | -.14* | .08** | .02 | .04 | .20* | | |
| *8 Dispositional hope* | 47.75 | 9.76 | -.14* | .42* | -.25* | .33* | .17* | .32* | -.03 | .00 | |

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

When Table 1 is examined, there is a negative correlation between the excessive usage sub-dimension of problematic internet usage scale and openness (r= -.10, p<.05), agreeableness (r= -.10, p<.05), dispositional hope level (r= -.14, p<.01), low correlation towards positive relationship between neuroticsm (r= 22, p<.01), and a negative correlation at medium level with conscientiousness (r= -.35, p<.01). Findings related to hierarchic regression analysis are shown in Table 2.

**Table 2**

*Variables Predicting Excessive Usage Variable*

|  | R | R² | R² ch | F | DF | B | β | P |
|---|---|---|---|---|---|---|---|---|
| **Block 1** | | | | | | | | |
| (Constant) | .369 | .136 | .136 | 13.232 | 5/420 | 23.728 | | |
| Openness | | | | | | -.006 | -.009 | .862 |
| Neuroticism | | | | | | .109 | .137 | .005 |
| Extraversion | | | | | | .042 | .051 | .312 |
| Agreeableness | | | | | | .006 | .007 | .887 |
| Conscientiousness | | | | | | -.267 | -.312 | .000 |
| **Block 2** | | | | | | | | |
| (Constant) | .372 | .138 | .002 | 9.564 | 7/418 | 26.167 | | |
| Openness | | | | | | -.006 | -.008 | .880 |
| Neuroticism | | | | | | .103 | .130 | .009 |
| Extraversion | | | | | | .044 | .054 | .292 |
| Agreeableness | | | | | | .005 | .005 | .915 |
| Conscientiousness | | | | | | -.268 | -.314 | .000 |
| Sex | | | | | | -.109 | -.010 | .833 |
| Age | | | | | | -.102 | -.042 | .370 |
| **Block 3** | | | | | | | | |
| (Constant) | .373 | .139 | .001 | 8.419 | 8/417 | 26.632 | | |
| Openness | | | | | | .002 | .002 | .964 |
| Neuroticism | | | | | | .100 | .126 | .012 |
| Extraversion | | | | | | .049 | .060 | .246 |
| Agreeableness | | | | | | .006 | .006 | .894 |
| Conscientiousness | | | | | | -.263 | -.307 | .000 |
| Sex | | | | | | -.108 | -.010 | .834 |
| Age | | | | | | -.107 | -.044 | .348 |
| Dispositional hope | | | | | | -.019 | -.037 | .488 |

When Table 2 is examined, it is apparent that openness, extraversion and agreeableness variables, which are personality features entering into the model at the first step, are not meaningful in their authentic contributions in the model $R^2$ = .136, F (5,420) = 13,232, p>.05. When the contribution of the neurotics variable to the model was examined, ($\beta$ = .137, p<.05) excessive usage predicted positively and at a low level whereas conscientiousness ($\beta$ = .-312, p<.01) predicted negatively at a medium level. In other words, it has been observed that as neuroticism in individuals increases, excessive usage also increases; as conscientiousness increases, excessive usage decreases. The contributions of variables to the variance was determined at 13.6%.

Upon examination of the authentic contributions of gender and age variables, which are entered in the second step, it was seen that none were meaningful ($R^2$ = .138, F (7,418) = 9,567, p>.05). The hope variable was added into the model in the third step. The authentic contribution of the hope variable to the model was not found to be meaningful ($R^2$ = .139, F (8,417) = 8.419, p>.05). A partial effect magnitude for being neurotic as a meaningful predictor in the model was $sr^2$ = .02; and for conscientiousness, $sr^2$ = .09. In other words, when the effect of other variables is considered, the explanation rate of excessive internet usage to neurotics is 2%, and the explanation rate of conscientiousness is 9%.

Cohen (1988) indicated that the reference values for small effect magnitude was 0.02; for medium, 0.13; and for big ones, 0.26 in regression analysis (as cited in Berberoglu & Tansel, 2014). According to this partial effect magnitude, it can be said that partial effect magnitude of neuroticism and self-discipline have a small value. In this situation, the effect of variables does not have a practical value. When the effect magnitude of models is evaluated, an explanation of predicted variable power of variables can be accepted as small ($R^2$ = .136, .138, 139). According to Cohen (1988), these effect magnitude results can be stated as: ($R^2$ =.0196 as small; .1300 as medium; and .2600 as big effect (as cited in Ozsoy & Ozsoy, 2013). In addition, when the $R^2$ ch values of the model are examined, whereas explanation rate of addictive variable of the first model is $R^2$ ch = .136, the second and third ones are .002 and .001. In this case, it can be seen that the variables that have been added in the model in the second and third steps do not have practical meaning. The contributions of all variables to the variance was found to be 13.8%. When generally evaluated, it is observed that the contribution of the first model is higher than the other two models ($R^2$ ch= .136).

*Prediction of Negative Results of İnternet Sub-Scale of Problematic İnternet Usage Scale*

Correlation coefficients between average, standard deviation and variables related to predicted and predictor variables are shown in Table 3.

**Table 3**

*Correlation Matrix Showing the Relationships between Variables and Mean and Standard Deviation of the Dependent and Independent Variables*

| | M | SS | Negative Result | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Negative Results of Internet* | 16.32 | 3.55 | | | | | | | | | |
| *Personality characteristics* | | | | | | | | | | | |
| *1 Openness* | 36.02 | 6.14 | .20* | | | | | | | | |
| *2 Neuroticism* | 23.79 | 5.69 | .20* | -.21* | | | | | | | |
| *3 Extraversion* | 27.32 | 5.99 | .35* | .45* | .30* | | | | | | |
| *4 Agreeableness* | 34.04 | 4.71 | -.05 | .28* | .21* | .11 | | | | | |
| *5 Conscientiousnes* | 32.25 | 5.41 | -.26* | .28* | -.35* | .12 | .31 | | | | |
| *6 Sex* | 1.32 | .46 | .13** | -.01 | -.13** | .12 | -.16 | -.14* | | | |
| *7 Age* | 20.71 | 1.51 | .09** | .09** | -.04 | .13** | -.09 | .05 | .20* | | |
| *8 Dispositional hope* | 48.79 | 8.34 | -.06 | .52* | .30* | .37* | .30 | .39* | .03 | .00 | |

*\*p<.01*
*\*\*p<.05*

When Table 3 is examined, it is found that there is a relationship between negative results of internet sub-scale and openness (r= .20, p<.01), neurotic (r= .20, p<.01), gender (r= .13, p<.05) and age (r= .09, p<.05) at a positive low level; additionally, there is a relationship at a positive medium level between extraversion (r= .35, p<.01) and openness, as well as its negative correlation at low a level with conscientiousness (r= -.26, p<.01). Findings related to hierarchic regression analysis are provided in Table 4.

**Table 4.**

*Variables Predicting the Internet's Negative Results Variable*

|  | R | R² | R² ch | F | DF | B | β | P |
|---|---|---|---|---|---|---|---|---|
| **Block 1** | | | | | | | | |
| (Constant) | .529 | .280 | .280 | 28.806 | 5/370 | | | |
| Openness | | | | | | .093 | .160 | .002 |
| Neuroticism | | | | | | .158 | .253 | .000 |
| Extraversion | | | | | | .226 | .381 | .000 |
| Agreeableness | | | | | | -.002 | -.003 | .946 |
| Conscientiousness | | | | | | -.169 | -.257 | .000 |
| **Block 2** | | | | | | | | |
| (Constant) | .537 | .289 | .009 | 21.352 | 7/368 | | | |
| Openness | | | | | | .091 | .158 | .003 |
| Neuroticism | | | | | | .168 | .269 | .000 |
| Extraversion | | | | | | .219 | .369 | .000 |
| Agreeableness | | | | | | .011 | .015 | .754 |
| Conscientiousness | | | | | | -.161 | -.245 | .000 |
| Sex | | | | | | .644 | .083 | .077 |
| Age | | | | | | .086 | .037 | .422 |
| **Block 3** | | | | | | | | |
| (Constant) | .554 | .307 | .018 | 20.285 | 8/367 | | | |
| Openness | | | | | | .126 | .217 | .000 |
| Neuroticism | | | | | | .160 | .256 | .000 |
| Extraversion | | | | | | .234 | .394 | .000 |
| Agreeableness | | | | | | .024 | .032 | .506 |
| Conscientiousness | | | | | | -.136 | -.207 | .000 |
| Sex | | | | | | .723 | .093 | .045 |
| Age | | | | | | .059 | .025 | .576 |
| Dispositional hope | | | | | | -.072 | -.169 | .002 |

When Table 4 is examined, it is seen that openness to development, neuroticism, extraversion and conscientiousness variables, which are entering in the model at the first step, are meaningful in their authentic contributions in the model $R^2$ = .280, F (5,370) = 28,806 p<.01. Coherence variety has no authentic contribution to the model (β = .-003, p>05). Openness (β = .160, p<.01) and neuroticism (β = .253, p<.01) predict negative effects of internet positively at a low level, and extraversion (β = .381, p<.01) predicts positively at a medium level. Conscientiousness (β = -.257, p<.01) predicts negatively at a medium level. The total contribution of variables to the variance has been found to be 28%.

It has been seen that gender and age variables, which are entered into the model in the second step, do not show a meaningful relationship with the predicted variable ($R2$ = .289, F (7,368) = 21,352, p>.05). An authentic contribution of the hope variable, which was entered into the model in the third step, has been found meaningful (r $R2$ = .307, F (8,367) = 20,285 p<.01). There is a negative relationship between dispositional hope level and negative results of internet at a low level (β = -.169, p<.01). Whereas the contribution of all variables to the model was 28.9% in the second step, the contribution of all variables to the model in the third step was found to be 30.7%. When

summarized, as openness, extraversion and neuroticism increase, the effects of negative results of the internet increase. As conscientiousness increases, the effects of negative results of the internet decrease. At the same time, it can be said that as the hope level increases, the effects of negative results of the internet decreases. When partial effect magnitudes of the predictors are examined, openness has been found as $sr^2 = .03$; neuroticism as $sr^2 = .07$; extravert as $sr^2 = .13$; and conscientiousness as $sr^2 = .05$. In other words, when all variables are considered, 3% of negative results of the internet are explained by openness; 7% by neuroticism; 13% by extraversion; and 5% by conscientiousness.

When partial effect magnitudes are evaluated, they are found to be at a low level for openness to development, neuroticism and conscientiousness; and at a medium level for extraversion. All variables except extraversion have no practical value. When effect magnitudes of these models are viewed, the power of models in explaining the predicted variable can be accepted as low ($R^2 = .280, .289, .307$) (as cited in Ozsoy and Ozsoy, 2013). In addition, the model, which is conducted at the first step, was the highest predictor ($R^2 ch = .280$). When $R^2 ch$ values of the models are examined, whereas explanation rate of addictive variable of the first model was $R^2 ch = .280$, the contribution of the second model was $R^2 ch = .009$, and the contribution of the third model was $R^2 ch = .018$. The most effective model in explaining the addictive variable is the first model.

**Prediction of social benefit/social comfort sub-scale of problematic internet usage scale:** Correlation coefficients between average, standard deviation and variables related to predicted and predictor variables taking place in the research are given in Table 5.

**Table 5**

*Correlation Matrix Showing The Relationships Between Variables And Mean And Standard Deviation of the Dependent And İndependent Variables*

| | M | SS | Social Benefit | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Social Benefit* | 19.06 | 7,71 | | | | | | | | | |
| *Personality characteristics* | | | | | | | | | | | |
| *1 Openness* | 36.02 | 6.14 | -.22* | | | | | | | | |
| *2 Neuroticism* | 23.79 | 5.69 | .24* | -.21* | | | | | | | |
| *3 Extraversion* | 27.32 | 5.99 | -.19* | .45* | -.30* | | | | | | |
| *4 Agreeableness* | 34.04 | 4.71 | -.31* | .28* | -.21* | .11 | | | | | |
| *5 Conscientiousness* | 32.25 | 5.41 | -.29* | .28* | -.35* | .12 | .31* | | | | |
| *6 Sex* | 36.02 | .46 | .11 | -.01 | -.13** | .12 | .16* | -.14* | | | |
| *7 Age* | 23.79 | 1.51 | .13** | .09 | -.04 | .13** | -.09** | .05 | .20* | | |
| *8 Dispositional hope* | 27.32 | 8.34 | -.34* | .52* | -.30* | .37* | .30* | .39* | .03 | .00 | |

*\*p<.01 \*\*p<.05*

According to Table 5, there is a negative relationship at a low level between social benefit/social comfort sub-scale of problematic internet usage scale and openness (r= -.22, p<.01), extraversion (r= -.19, p<.01), and conscientiousness (r= -.29, p<.01). There is a negative relationship at a medium level between dispositional hope (r= -.34, p<.01) and coherence (r= -.31, p<.01). Positive and low level relationships have been found between neuroticism (r= .24, p<.01) and age (r= .13, p<.05). Findings related to hierarchic regression analysis are shown in Table 6.

**Table 6**

*Variables Predicting Social Benefits/Social Comfort Variable*

| | R | R² | R² ch | F | DF | B | β | P |
|---|---|---|---|---|---|---|---|---|
| **Block 1** | | | | | | | | |
| (Constant) | .410ᵃ | .168 | .168 | 14.912 | 5/370 | | | |
| Openness | | | | | | -.062 | -.050 | .376 |
| Neuroticism | | | | | | .126 | .093 | .081 |
| Extraversion | | | | | | -.126 | -.098 | .075 |
| Agreeableness | | | | | | -.355 | -.217 | .000 |
| Conscientiousness | | | | | | -.236 | -.166 | .002 |
| **Block 2** | | | | | | | | |
| (Constant) | .436 | .190 | .023 | 12.350 | 7/368 | | | |
| Openness | | | | | | -.073 | -.058 | .294 |
| Neuroticism | | | | | | .142 | .104 | .050 |
| Extraversion | | | | | | -.151 | -.118 | .032 |
| C onscientiousness | | | | | | -.310 | -.190 | .000 |
| Agreeableness | | | | | | -.233 | -.163 | .002 |
| Sex | | | | | | .986 | .059 | .241 |
| Age | | | | | | .672 | .132 | .007 |
| **Block 3** | | | | | | | | |
| (Constant) | .461 | .213 | .023 | 12.411 | 8/367 | | | |
| Openness | | | | | | .012 | .009 | .874 |
| Neuroticism | | | | | | .121 | .089 | .091 |
| Extraversion | | | | | | -.115 | -.089 | .104 |
| Conscientiousness | | | | | | -.279 | -.171 | .001 |
| Agreeableness | | | | | | -.172 | -.121 | .028 |
| Sex | | | | | | 1.182 | .070 | .156 |
| Age | | | | | | .607 | .119 | .014 |
| Dispositional hope | | | | | | -.177 | -.191 | .001 |

When Table 6 is examined, it is seen that openness, neuroticism and extraversion variables, which are entering in the model at the first step. are not meaningful in their authentic contributions in the model (R² = .168, F (5,370) = 14,912 p>.05). The authentic contributions of coherence and conscientiousness variables are meaningful (R² = .168, F (5,370) = 14,912 p<.05). Agreeableness (β = -.217, p<.01) and conscientiousness (β = -.166, p<.01) predict social benefit/social comfort sub-dimension negatively and at a low level. In other words, as agreeableness and conscientiousness increase in individuals, usage of internet with the aim of social

benefit/social comforts decreases. The contribution of variables to total variance has been found to be 17%.

The gender variable, which was entered into the model in the second step, does not show a meaningful relationship with the predicted variable (R2 = .190, F (7,368) = 12,350, p>.05). The authentic contribution of age variable to the model is meaningful ($\beta$ = .132, p<.05) and positive and there is a low level predictor. The authentic contribution of the hope variable, which was entered into the model in the third step, has been found meaningful (R$^2$ = .213, F (8,367) = 12,411 p<.05). There is a negative relationship between dispositional hope level and negative results of internet at a low level ($\beta$ = -.191, p<.01). While the contribution of all variables to the model was 19% in the second step, the contribution of all variables to the model in the third step was 21.3%. Partial effect magnitudes for coherence are sr$^2$=.05; for self-discipline sr$^2$ = .08; for age sr$^2$=.02; and for dispositional hope sr$^2$=.03. These values can be interpreted as partial effect magnitudes, for all free variables are small and practical values are nonexistent. When effect magnitudes are evaluated, the explanation power of predicted variables can be accepted at a medium level. (R$^2$ = .168, .190, 213) (as cited in Ozsoy & Ozsoy, 2013). In addition, when R$^2$ ch values of the model are examined, whereas the explanation rate of addictive variables of the first model were R$^2$ ch = .168, the contribution of the second and third models were .023. In this situation, the variables that were added in the model in the second and third steps do not have a practical value.

## Discussion and Conclusion

This study has searched for the relationship between problematic internet usage behaviours of university students and personality features, i.e., age, gender and dispositional hope level. Every sub-dimension of problematic internet usage has been used as predicted variables (excessive usage as sub-dimension of problematic internet usage, negative results of internet and social benefit/social comfort) and hierarchic regression analysis has been done for every predicted variable in three blocks.

The results of the analysis show that whereas neuroticism as a personality traitpredicts excessive internet usage positively and at low level, self-discipline predicts usage negatively at a medium level. In other words, as neuroticism increases, excessive internet usage also increases; while conscientiousness increases, excessive internet usage decreases. When findings related to negative results of the internet are analyzed, openness, extraversion and neuroticism increase as the negative effects of the internet increase. As conscientiousness increases, the negative effects of the internet decrease. When findings are evaluated in light of the literature, several studies indicate that personality traits are related to internet usage behaviours (Amichai-Hamburger & Ben-Artzi, 2003, Kayis et al., 2016; Laconi et al., 2016; Laconi, Vigouroux, Lafuente, & Chabrol, 2017; Truzoli, Osborne, Romano, & Reed, 2016; Wolfradt & Doll, 2001). Many people turn to the internet in order to manage stress, loneliness, depression, and anxiety (Panicker & Sachdev, 2014). There is a meaningful relationship

between shyness, internet use, personality traits and problematic internet use (Ebeling Witte, Frank, & Lester, 2007) Extraversion and neuroticism in women are related to the use of social websites (Hamburger & Ben-Artzi, 2000). Likewise, Hardie and Tee (2007) and Eksi (2012) found that neuroticism was a predictor of excessive internet usage. Consistent with this research, internet addiction was linked positively to anxiety and stress. (Panicker & Sachdev, 2014). Similarly, Kayis et al. (2016) emphasize the relationship between problematic internet use and openness, conscientiousness, extraversion, agreeableness and neuroticism. Zhou, Li, Li, Wang and Zhao, (2017) indicate that personality traits have a role in problematic internet use. On the other hand, Odaci and Berber Celik (2013) did not find a meaningful relationship between problematic internet usage and narcissism.

When findings related to social benefit/comfort are evaluated, agreeableness and conscientiousness predict the social benefit/comfort sub-dimension negatively and at a low level. In other words, as agreeableness and conscientiousness increase in individuals, usage of internet with the aim of providing social benefit/comfort decreases. Shi, Chen and Tian (2011) found that internet self-efficacy and sensation-seeking positively predicted problematic internet use.

As the hope level increases, the level of being affected from negative results of the internet decreases. At the same time, there is a negative relationship between the dispositional hope level and negative results of internet usage at a low level. In the literature, studies related to problematic internet usage and dispositional hope level were not found, while the number of studies conducted about well-being in relation to positive psychology has drawn attention (Chen, 2012; Mei et al., 2016).

When the results are evaluated in the frame of age and gender, age predicts positively at a low level. On the other hand, gender was not found to be meaningful as a predictor variable in the three dimensions of problematic internet usage. The findings provided in this context show a consistency with the studies stating that there is not a difference (Hardie and Yi- Tee, 2007, Panicker & Sachdev, 2014) in the frame of internet usage style and time period between genders (Wolfradt & Doll, 2001). On the other hand, there are studies presenting that problematic internet usage is affected by gender (Mei et al., 2016; Ostovar, et al., 2016; Sariyska, Reuter, Lachmann, & Montag, 2015). In a study conducted among university students, they found that problematic internet usage was higher among males than females (Ancel, Acikgoz, & Yavas Ayhan, 2015; Esitti, 2015; Odaci & Kalkan, 2010; Oktan, 2015b). Likewise, Sargin (2013) found a difference at a meaningful level in favour of males and problematic internet usage sub-dimensions, such as loneliness, decreased instinct control, social support and distracted attention total scores and attitude towards internet usage. Likewise Durak and Senol-Durak (2013) demonstrated that gender (being male) and spending time with internet was meaningful on the effect of related cognitions about problematic internet usage.

In addition, many studies indicated that the level of males' problematic internet usage was higher than for females (Zorbaz, 2013; Zorbaz & Tuzgol Dost, 2014; Durmus & Basarmak, 2014; Cagir, 2010). However, these results based on gender on

problematic internet usage can differ according to the research method and selected study group, especially in recent years among those who are defined as "digital natives" (Prensky, 2001) and have continuous access to the internet via smart phones. However, this is true for both genders.

There are differences between internet usage periods and activities conducted on the internet. For example, Fernández-Villa et al. (2015) found that weekly internet usage was found more in females than males. In addition, differences in problematic internet usage between males and females emerged according to the areas in which they are interested. While males exhibit problematic internet usage online playing games and shopping, females use it for chatting and using social websites. Yu and Shek (2013) stated that male adolescents have more problematic internet usage than the females in their studies with adolescents. Wang et al. (2013) and Li, Dang, Zhang, Zhang and Guo (2014) presented that in a similar way gender was a predictor of internet addiction during adolescence. In addition to this, Gross (2004) indicated no difference in the frame of internet addiction according to the gender among 7th and 10th grade students; he states that older adolescents spend more time on the internet.

When the results are evaluated, it is seen that especially self-discipline as a personality feature has been a predictor variable in all sub-dimensions of problematic internet usage and it has relationship with problematic internet usage at low levels. In this frame, when increased internet usage is considered, it is important to research the elements that provide self-discipline in individual development. Neuroticism predicts problematic internet usage positively. It is seen that the hope concept, which has an important place in the positive psychology has been a predictor variable in problematic internet usage. Age variables were not found as a predictor variable in problematic internet usage.

In the context of this study, university students were selected as a study group. Evaluation of results related to the studies made with high school students and adults make a contribution to the field. In addition, relationships between internet usage fields and gender have not been evaluated. In future studies, relationships between different usage fields of internet and problematic internet usage can be examined. It is also important to evaluate the general situation of problematic internet usage developmentally in individuals in the frame of preventing studies. Qualitative studies will provide detailed evaluation of problematic internet usage behaviours of the individuals.

## References

Alpaslan, A. H., Soylu, N., Koçak, U. & Guzel, H. I. (2016). Problematic ınternet use was more common in Turkish adolescents with major depressive disorders than controls. *Acta Paediatrica*, 105 (6), 695-700.

Amichai-Hamburger, Y. & Ben-Artzi, E. (2003). Loneliness and internet use. *Computers in Human Behavior*, 19 (1), 71–80.

Ancel, G., Açıkgoz, I., & Yavaş Ayhan, A. G. (2015). Problemli internet kullanımı ile duygusal zeka ve bazı sosyodemografik degişkenler arasındaki iliski [The relationship between problematic internet using emotional intelligence and some sociodemographic variables]. *Anatolian Journal of Psychiatry/Anadolu Psikiyatri Dergisi*, *16*(4), 255-263

Ang, R. P., Chong, W. H., Chye, S., & Huan, V. S. (2012). Loneliness and generalized problematic ınternet use: Parents' perceived knowledge of adolescents' online activities as a moderator. *Computers in Human Behavior*, 28 (4), 1342-1347.

Ata, E. E., Akpınar, S. & Kelleci, M. (2011). The relationship between students problematic internet usage and their anger expression manner. *TAF Preventive Medicine Bulletin*, 10 (4), 473-480.

Babacan Gumus, A., Sipkin, S., Tuna, A., & Keskin, G. (2015). Universite öğrencilerinde problemli internet kullanimi, siddet egilimi ve bazi demografik degiskenler arasındaki iliski [The relationship between problematic internet use, violence trend and some demographic variables among university students]. *TAF Preventive Medicine Bulletin*, *14*(6),460-467

Balkaya Cetin, A., & Ceyhan, A. A. (2015). Ergenlerin internette kimlik denemeleri ve problemli internet kullanim davranislarıı [Adolescents' ıdentity experiments on the ınternet and problematic ınternet use behavior]. *Addicta: The Turkish Journal on Addiction*, *1*(2), 5-46.

Basim, H. N., Cetin, F. & Tabak, A. (2009). Bes Faktor Kisilik ozelliklerinin kisilerarasi catisma cozme yaklasimlariyla iliskisi [The relationship between Big Five Personality characteristics and conflict resolution approaches]. *Turk Psikoloji Dergisi*, 24 (63), 20-34.

Beard, K. W. (2005). Internet addiction: a review of current assessment techniques and potential assessment questions. *CyberPsychology & Behavior*, 8 (1), 7-14.

Beard, K. W., & Wolf, E. M. (2001). Modification in the proposed diagnostic criteria for internet addiction. *CyberPsychology & Behavior*, 4 (3), 377-383.

Benet-Martinez, V. & John, O.P. (1998). Cinco grandes across cultures and ethnic groups: multitrait multimethod analyses of the big five in Spanish and English. *Journal of Personality and Social Psychology*, 75 (3), 729-750.

Berber Celik, C. & Odaci, H. (2013). The relationship between problematic internet use and interpersonal cognitive distortions and life satisfaction in university students. *Children and Youth Services Review*, 35 (3), 505-508.

Berberoglu, G., & Tansel, A. (2014). Does private tutoring increase students' academic performance? Evidence from Turkey. *International Review of Education*, 60 (5), 683-701.

Breslau, J., Aharoni, E., Pedersen, E., & Miller, L. L. (2015). A review of research on problematic internet use and well-being: with recommendations for the U.S. Air Force. RAND Health Quarterly, 5(1), 20

Cagır, G. (2010). Lise ve universite ogrencilerinin problemli internet kullanim duzeyleri ile algilanan esenlik halleri ve yalnizlik duzeyleri arasindaki iliski [The relationship between the levels of high school and university students' problematic use of ınternet and their perceived wellness and loneliness levels]. Unpublished master's thesis, Balikesir Universitesi Sosyal Bilimler Enstitusu, Balıkesir.

Cao, H., Sun, Y., Wan, Y., Hao, J. & Tao, F. (2011). Problematic internet use in Chinese adolescents and its relation to psychosomatic symptoms and life satisfaction. *BMC Public Health,* 11 (1), 802-1810.

Casale, S., Lecchi, S., & Fioravanti, G. (2015). The association between psychological well-being and problematic use of internet communicative services among young people. *The Journal of Psychology,* 149 (5), 480-497.

Ceyhan, A. A. & Ceyhan, E. (2008). Loneliness, depression, and computer self-efficacy as predictors of problematic internet use. *CyberPsychology & Behavior*, 11 (6), 699-701.

Ceyhan, E. (2010). Predictiveness of identity status, main internet use purposes and gender on university students' the problematic internet use. *Educational Sciences: Theory and Practice,* 10 (3), 1343-1355.

Ceyhan, A. A. (2011). Internet kullanma temel nedenlerine gore universite ögrencilerinin problemli internet kullanimi ve algiladıkları iletisim beceri duzeyleri [University students' problematic ınternet use and communication skills according to the ınternet use purposes]. *Kuram ve Uygulamada Eğitim Bilimleri,* 11 (1), 59-77.

Ceyhan, E., Ceyhan, A.A. & Gurcan, A., (2007). Problemli internet kullanimi olçeginin gecerlik ve guvenirlik çalismalari [The validity and reliability of the problematic ınternet usage scale]. *Educational Sciences: Theory & Practice [Kuram ve Uygulamada Egitim Bilimleri-KUYEB Dergisi],* 7 (1), 387-416.

Chang J P-C, Hung C-C. (2012). Problematic internet use. In J.M. Rey (Ed), *IACAPAP e-Textbook of Child and Adolescent Mental Health.* Geneva: International Association for Child and Adolescent Psychiatry and Allied Professions .

Chen, S. K. (2012). Internet use and psychological well-being among college students: A latent profile approach. *Computers in Human Behavior*, 28 (6), 2219–2226.

Chen, S. K., & Lin, S. S. (2016). A latent growth curve analysis of initial depression level and changing rate as predictors of problematic Internet use among college students. *Computers in Human Behavior*, *54*, 380-387.

Chou, C., Condron, L. & Belland, J. C. (2005). A review of the research on internet addiction. *Educational Psychology Review*, 17 (4), 363-388.

Çağır, G. (2010). *Lise ve üniversite öğrencilerinin problemli internet kullanım düzeyleri ile algılanan esenlik halleri ve yalnızlık düzeyleri arasındaki ilişki* [*The relationship between the levels of high school and university students' problematic use of ınternet and their perceived wellness and loneliness levels*]. Unpublished master's thesis, Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü, Balıkesir.

Cuhadar, C. (2012). Exploration of problematic Internet use and social interaction anxiety among Turkish pre-service teachers. *Computers & Education*, 59 (2), 173-181.

Durak, M. & Senol-Durak, E. (2013). Associations of social anxiety and depression with cognitions related to problematic internet use in youths. *Egitim ve Bilim*, 38 (169), 19-29.

Durmus, A. & Basarmak, U. (2014). Oğretmen adaylarinin egitsel internet kullanim oz-yeterlik inanclari ve problemli internet kullanim durumlari arasindaki iliskinin incelenmesi [Investigation of the relation between teacher candidates ınternet self-efficiency belief and their problematic ıntended use]. *Ahi Evran Universitesi Kirsehir Egitim Fakultesi Dergisi*, 15 (3), 49-67.

Ebeling-Witte, S., Frank, M.L. & Lester, D. (2007). Shyness, ınternet use, and personality**.** *CyberPsychology & Behavior*. 10(5): 713-716.

Eksi, F. (2012). Examination of narcissistic personality traits' predicting level of internet addiction and cyber bullying through path analysis. *Educational Sciences: Theory and Practice,* 12 (3), 1694-1706.

Eroglu, Y. (2016). Universite ögrencilerinde problemli internet kullanimi: İliskisel-karsilikli bagimli benlik kurgusu ve durtuselliğin yordama gucleri [Problematic ınternet use in university students: The predictive stenght of relational-Interdependent self-construal and ımpulsivity]. *Turkish Studies International Periodical for the Languages, Literature and History of Turkish or Turkic*, *11* (3), 1091-1114.

Esitti, S. (2015). Bilgi caginda problemli internet kullanimi ve enformasyon obezitesi : Problemli internet kullanimi olceginin üniversite ogrencilerine uygulanmasi [The problematic internet usage and information obesity in the information age: application of the problematic internet usage scale to the university students]. *University Faculty of Communication Journal/Istanbul Üniversitesi İletisim Fakültesi Hakemli Dergisi*, 49, 75-97.

Fernández-Villa, T., Ojeda, J.A., Gómez, A.A., Carral, J.M.C., Delgado-Rodríguez, M., García-Martín, M., Jiménez-Mejías, E., Llorca, J., Molina, A.J., Moncada, R.O., Valero-Juan, L.F., Martín, V. (2015). Problematic internet use in university students: associated factors and differences of gender. *Addiciones*, 27 (4), 265-275.

Gámez-Guadix, M. (2014). Depressive symptoms and problematic ınternet use among adolescents: Analysis of the longitudinal relationships from the cognitive–behavioral model. *Cyberpsychology, Behavior, and Social Networking*, 17 (11), 714-719.

Griffiths, M. D. (2000a). Does internet and computer —addiction exist? Some case study evidence. *CyberPsychology and Behavior*, 3 (2), 211-218.

Griffiths, M. (2000b). Does internet and computer" addiction" exist? Some case study evidence. *CyberPsychology and Behavior*, 3 (2), 211-218.

Gross, E. F. (2004). Adolescent internet use: What we expect, what teens report. *Journal of Applied Developmental Psychology*, 25 (6), 633-649.

Hamburger, Y. A. & Ben-Artzi, E. (2000). The relationship between extraversion and neuroticism and the different uses of the internet. *Computers in Human Behavior*, 16, 441–449.

Hardie, E. & Yi-Tee, M. (2007). Excessive internet use: the role of personality, loneliness and social support networks in internet addiction. *Australian Journal of Emerging Technologies and Society*, 5(1), 33–47.

Kayis, A. R., Satici, S. A., Yilmaz, M. F., Simsek, D., Ceyhan, E., & Bakioglu, F. (2016). Big five-personality trait and internet addiction: A meta-analytic review. *Computers in Human Behavior*, *63*, 35-40.

Kim, H. K. & Davis, K. E. (2009). Toward a comprehensive theory of problematic internet use: Evaluating the role of self-esteem, anxiety, flow, and the self-rated importance of internet activities. *Computers in Human Behavior*,  25, 490-500.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox. A social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53, 1017–1031.

Lachmann, B., Sariyska, R., Kannen, C., Cooper, A., & Montag, C. (2016). Life satisfaction and problematic Internet use: Evidence for gender specific effects. *Psychiatry research*, *238*, 363-367.

Laconi, S., Andréoletti, A., Chauchard, E., Rodgers, R. F., & Chabrol, H. (2016). Problematic Internet use, time spent online and personality traits. *L'Encephale*, *42*(3), 214-218.

Laconi, S., Vigouroux, M., Lafuente, C., & Chabrol, H. (2017). Problematic internet use, psychopathology, personality, defense and coping. *Computers in Human Behavior*, *73*, 47-54.

Li, C., Dang, J., Zhang, X., Zhang, Q. & Guo, J. (2014). Internet addiction among Chinese adolescents: The effect of parental behavior and self-control. *Computers in Human Behavior,* 41, 1-7.

Mei, S., Yau, Y. H., Chai, J., Guo, J. & Potenza, M. N. (2016). Problematic Internet use, well-being, self-esteem and self-control: Data from a high-school survey in China. *Addictive Behaviors*, 61, 74-79.

Meral, D., & Bahar, H. H. (2016). Ortaogretim ogrencilerinde problemli internet kullaniminin yalnizlik ve psikolojik iyi olus ile iliskisinin incelenmesi [Investigating the relationship between problematic ınternet use and psychological well being and loneliness in secondary education students]. *Journal of Education Faculty*, *18*(2), 1117-1134

Melchers, M., Li, M., Chen, Y., Zhang, W., & Montag, C. (2015). Low empathy is associated with problematic use of the Internet: Empirical evidence from China and Germany. *Asian journal of psychiatry*, *17*, 56-60..

Mitchell, P. (2000). Internet addiction: Genuine diagnosis or not? *The Lancet*, 355, 632-635.

Moreno, M. A., Jelenchick, L. A. & Christakis, D. A. (2013). Problematic internet use among older adolescents: A conceptual framework. *Computers in Human Behavior*, 29 (4), 1879-1887.

Moreno, M. A., Jelenchick, L. A. & Breland, D. J. (2015). Exploring depression and problematic internet use among college females: a multisite study. *Computers in Human Behavior,* 49, 601-607.

Odacı, H. & Berber Celik, C. (2013). Who are problematic internet users? An investigation of the correlations between problematic internet use and shyness, loneliness, narcissism, aggression and self-perception. *Computers in Human Behavior*, 29 (6), 2382-2387.

Odacı, H., & Cikrikci, O. (2017). Differences in problematic ınternet use based on depression, anxiety, and stress levels. *Addıcta: The Turkish Journal on Addictions*, 4(1), 51-61.

Odaci, H. & Kalkan, M. (2010). Problematic internet use, loneliness and dating anxiety among young adult university students. *Computers & Education*, 55 (3), 1091-1097.

Oktan, V. (2015a). An investigation of problematic internet use among adolescents in terms of self-injurious and risk-taking behavior. Children and Youth Services Review, 52, 63-67.

Oktan, V. (2015b). Universite ogrencilerinde problemli internet kullanimi, yalnizlik ve algilanan sosyal destek [Problematic internet use, loneliness and perceived social support among university students ]. *Kastamonu Egitim Dergisi*, *23*(1), 281-292.

Ostovar, S., Allahyar, N., Aminpoor, H., Moafian, F., Nor, M. B. M., & Griffiths, M. D. (2016). Internet addiction and its psychosocial risks (depression, anxiety, stress and loneliness) among Iranian adolescents and young adults: A

structural equation model in a cross-sectional study. *International Journal of Mental Health and Addiction*, *14*(3), 257-267.

Ozsoy, S. & Ozsoy, G. (2013). Effect size reporting in educational research. *Ilkogretim Online (Elementary Education Online),* 12 (2), 334-346.

Panicker, J. & Sachdev, R. (2014). Relations among loneliness, depression, anxiety, stress and problematic ınternet use. I*nternational Journal of Research in Applied*. Vol. 2, Issue 9, 1-10.   www.impactjournals.us.

Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, 9 (5), 1-6.

Reisoglu, I., Gedik, N. & Goktas, Y. (2013). Ogretmen adaylarinin ozsaygi ve duygusal zekâ duzeylerinin problemli internet kullanimiyla iliskisi [Relationship between pre-service teachers' levels of self-esteem, emotional ıntelligence and problematic ınternet use]. *Eğitim ve Bilim,* 38 (170), 150-166.

Rücker, J., Akre, C., Berchtold, A., & Suris, J. C. (2015). Problematic Internet use is associated with substance use in young adolescents. *Acta paediatrica*, *104*(5), 504-507.

Sargin, N. (2013). Universite ogrencilerinin internete yönelik tutumlari ve problemli internet kullanimlari [Internet attitudes and problematic ınternet use of university students]. *Turkish Journal of Education,* 2 (2), 44-53.

Sariyska, R., Reuter, M., Lachmann, B., & Montag, C. (2015). Attention deficit/hyperactivity disorder is a better predictor for problematic Internet use than depression: evidence from Germany. *Journal of Addiction Research & Therapy*, *6*(209), 1-6.

Sevindik, F. (2011). *Firat Universitesi ogrencilerinde problemli internet kullanimi ve saglikli yasam bicimi davranislarinin belirlenmesi.* Unpublished doctorate thesis, İnönü Universitesi Saglik Bilimleri Enstitusu, Malatya.

Shapira, N. A., Goldsmith, T. D., Keck, P. E., Khosla, U. M. & McElroy, S. L. (2000). Psychiatric features of individuals with problematic internet use. *Journal of Affective Disorders,* 57, 267–272.

Shapira, N.A., Lessing, M.C., Goldsmith, T.D., Szabo, S.T., Lazoritz, M., Gold, M.S. & Stein, D.J. (2003). Problematic internet use: Proposed classification and diagnostic criteria. *Depression and Anxiety*, 17, 207-216.

Shi, J., Chen, Z. & Tian, M. (2011).  Internet self-efficacy, the need for cognition, and sensation seeking as predictors of problematic use of the ınternet. Cyberpsychology, Behavior, and Social Networking. 14(4): 231-234.

Sirakaya, M. & Seferoglu, S. S. (2013). Ogretmen adaylarinin problemli internet kullanımlarinin incelenmesi [Investigation of problematic internet usage of teacher candidates]. *Hacettepe Universitesi Egitim Fakultesi Dergisi*, 28 (1), 356-368.

Skues, J., Williams, B., Oldmeadow, J., & Wise, L. (2016). The effects of boredom, loneliness, and distress tolerance on problem Internet use among university students. *International Journal of Mental Health and Addiction*, *14*(2), 167-180.

Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T. & et al. (1991). The will and the ways: Development and validation of an individual differences measure of hope. *Journal of Personality and Social Psychology, 60,* 570-585.

Sumer, N., Lajunen, T. & Ozkan, T. (2005). Big five personality traits as the distal predictors of road accident. *Traffic and Transport Psychology: Theory and Application*, 215-227.

Sumer, N. & Sumer, H. C. (2005) Beş faktör kişilik özellikleri ölçeği [The Big Five Inventory] (Unpublished study).

Tarhan, S. & Bacanli, H. (2015). Surekli umut olçegi'nin Turkce'ye uyarlanmasi: Gecerlik ve guvenirlik calismasi [Adaptation of dispositional hope scale into Turkish: Validity and reliability study]. *The Journal of Happiness & Well-Being*, 3(1), 1-14

Tekinarslan, E. (2017). Relationship between problematic internet use, depression and quality of life levels of Turkish university students. *Journal of Education and Training Studies*, *5*(3), 167-175.

Truzoli, R., Osborne, L. A., Romano, M., & Reed, P. (2016). The relationship between schizotypal personality and internet addiction in university students. *Computers in Human Behavior*, *63*, 19-24.

Tsitsika, A., Critselis, E., Janikian, M., Kormas, G. & Kafetzis, D. A. (2011). Association between internet gambling and problematic internet use among adolescents. *Journal of Gambling Studies,* 27 (3), 389-400.

Uz Bas, A., Soysal, F., & Aysan, F. (2016). Universite ogrencilerinde problemli internet kullaniminin psikolojik iyi-olus ve sosyal destek ile iliskisi [Relationship of problematic internet usage to psychological well-being and social support in college students]. *Itobiad: Journal of the Human & Social Science Researches*, *5*(4), 1035-1046

Van den Eijnden, R., Meerkerk, G. J., Vermulst, A. A., Spijkerman, R., & Engels, R. (2008). Online communication, compulsive internet use, and psychosocial wellbeing among adolescents: A longitudinal study. *Developmental Psychology*, 44(3), 655–665.

Wang, L., Luo, J., Bai, Y., Kong, J., Luo, J., Gao, W. & Sun, X. (2013). Internet addiction of adolescents in China: Prevalence, predictors, and association with well-being. *Addiction Research & Theory*, 21 (1), 62-69.

Wolfradt, U. & Doll, J. (2001). Motives of adolescents to use the Internet as a function of personality traits, personal and social factors. *Journal of Educational Computing Research,* 24 (1), 13-27.

Yau, Y. H., Pilver, C. E., Steinberg, M. A., Rugle, L. J., Hoff, R. A., Krishnan-Sarin, S. & Potenza, M. N. (2014). Relationships between problematic ınternet use and problem-gambling severity: Findings from a high-school survey. *Addictive Behaviors,* 39 (1), 13-21.

Yellowlees, P. M. & Marks, S. (2007). Problematic internet use or internet addiction?. *Computers in Human Behavior*, 23 (3), 1447-1453.

Young, K. (1999) Internet addiction: symptoms, evaluation and treatment. In L. Van de Creek & T. Jackson (Eds.). *Innovations in clinical practice: A Source Book* (19-31). Sarasota, FL: Professional Resource Press.

Yu, L. & Shek, D. T. L. (2013). Internet addiction in Hong Kong adolescents: a three-year longitudinal study. *Journal of Pediatric and Adolescent Gynecology*, 26 (3), 10-17.

Zhou, Y., Li, D., Li, X., Wang, Y., & Zhao, L. (2017). Big five personality and adolescent Internet addiction: The mediating role of coping style. *Addictive behaviors*, 64, 42-48.

Zorbaz, O. (2013*). Lise ogrencilerinin problemli internet kullaniminin sosyal kaygi ve akran iliskileri acisindan incelenmesi* [*Examination of problematic internet use of high school student in terms of gender, social anxiety and peer relations*]. Unpublished master's thesis, Hacettepe Universitesi Sosyal Bilimler Enstitusu, Ankara.

Zorbaz, O. & Tuzgol Dost, M. (2014). Lise ogrencilerinin problemli internet kullaniminin cinsiyet, sosyal kaygi ve akran iliskileri acisindan incelenmesi [Examination of problematic internet use of high school student in terms of gender, social anxiety and peer relations]. *Hacettepe Universitesi Egitim Fakultesi Dergisi,* 29, (1), 298-310.

**Problemli İnternet Kullanımı: Kişilik Özellikleri, Cinsiyet, Yaş ve Sürekli Umut Düzeyinin Etkisi**

**Özet**

**Atıf:**

*Problem Durumu:* Bireylerin kimi zaman duygularını ifade etme, istedikleri kişi olma aracı olarak kullandıkları, kimi zamansa çeşitli fırsatlara ulaşmaya aracılık eden, dünyayı tanıma ve dünyaya açılma aracı olarak değerlendirilebilecek olan internet kullanımı, aşırı kullanım durumlarında bağımlılığa dönüşebilmektedir. İnternetle ilişkili belirli davranışlar internet bağımlılığı, internet bağımlılık bozukluğu, patolojik internet kullanımı gibi kavramlarla karşımıza çıkmaktadır. İnternet bağımlılığında sessizlik, duygu durumunda değişim, tolerans (kullanılan sürenin giderek artması), yoksunluk belirtileri, çatışma ve nüks etme ögelerine dikkat çekilirken, patolojik internet kullanımının aşırı derece oyun oynama, online cinsel etkinlikler, e-mail atma ve yazışma davranışlarından en az üçünü içermesi gerekmektedir. Problemli internet kullanımı ise internet kullanımının kontrol edilememesi ve bu nedenle de günlük yaşamda stres bozuklukları ve işlev bozuklukları yaşanması hali olarak tanımlanmaktadır. Geçmişinde bağımlılık ya da dürtü kontrolüyle ilgili hikayesi olan kişiler internetin problemli kullanımında risk grubunda yer almaktadır. Problemli internet kullanımı herhangi bir yaşta, sosyal, ekonomik ve eğitimsel düzeyde ortaya çıkabilmektedir.

*Araştırmanın Amacı:* Literatür incelendiğinde problemli internet kullanımı ile kişilik özellikleri ve umut arasındaki ilişkiyi araştıran bir çalışmaya rastlanmamıştır. Bu nedenle çalışmanın bulgularının problemli internet kullanımı konusunda yapılan çalışmalara ışık tutması ve literatüre bilgi sağlaması beklenmektedir. Bu amaçla bu çalışmada üniversite öğrencilerinin problemli internet kullanımları ile kişilik özellikleri, cinsiyet, yaş ve sürekli umut düzeyi arasındaki ilişki araştırılmıştır.

*Araştırmanın Yöntemi:* Bu çalışma üniversite öğrencilerinin problemli internet kullanımları ile kişilik özellikleri, cinsiyet, yaş ve sürekli umut arasındaki ilişkiyi ortaya koyabilmek amacıyla yapılan betimsel bir çalışmadır. Araştırmanın çalışma grubu Nevşehir Hacı Bektaş Veli Üniversitesi, Sakarya Üniversitesi ve Bartın Üniversitesinde 2014-2015 akademik yılında lisans eğitimine devam eden 376 öğrenciden oluşmaktadır. Katılımcıların 250'si kadın, 115'i erkektir. Öğrencilerin yaş aralıkları 18-25 arasındadır ve 151'i birinci sınıfa, 47'si ikinci sınıfa, 125'I üçüncü sınıfa ve 53'ü dördüncü sınıfa devam etmektedir. Araştırma verilerinin toplanmasında demografik bilgi formu, "Problemli İnternet Kullanımı Ölçeği", "Beş Faktör Kişilik Ölçeği" ve "Sürekli Umut Ölçeği" kullanılmıştır. Verilerin analizinde SPSS 22 kullanılmıştır. Hiyerarşik regresyon analizi yapılmadan önce değişkenlerin varsayımları karşılayıp karşılamadığı ve dağılımın normalliği saçılma diyagramı,

mahalonobis, cook'a distance, z değerlerine bakılarak incelenmiştir. Ayrıca yordanan değişkenler (Problemli internet kullanımının alt boyutları olan aşırı kullanım, internetin olumsuz sonuçları ve sosyal fayda/ sosyal rahatlık) ve yordayıcı değişkenler (kişilik özellikleri, cinsiyet, yaş ve sürekli umut) arasındaki ilişkiler ve puanların dağılımları incelenmiş ve puanların tüm ölçeklerde normal dağıldığı görülmüştür. Veriler ile analiz yapılmadan önce eksik veriler incelenmiş, boş bırakılan maddeler EM algoritması yoluyla incelenerek ortalama değer ataması yapılmıştır. Analizlerin birinci adımında kişilik özellikleri, ardından cinsiyet ve yaş değişkenleri ve en son olarak umut değişkeni analize dahil edilmiş, problemli internet kullanımının her bir alt boyutu için yordayıcı değişkenler belirlenmeye çalışılmıştır. Hiyerarşik regresyon sonunda bağımsız değişkenlerin pratik anlamı olup olmadığını belirlemek için kısmi etki büyüklükleri değerleri belirlenmiştir. Ayrıca her bir modelin $R^2$ ch değerleri yorumlanarak da modellerin bağımlı değişkeni yordama güçleri değerlendirilmiştir. Modellerin etki büyüklükleri için regresyon katsayısı olan $R^2$ hesaplanmıştır.

*Araştırmanın Bulguları:* Problemli internet kullanımı ölçeği *aşırı kullanım* alt boyutu ile gelişime açıklık, uyumluluk, sürekli umut düzeyi arasında negatif, nörotiklik arasında pozitif yönde düşük korelasyon, öz disiplin ile orta düzeyde negatif yönde korelasyon bulunmuştur. problemli internet kullanımı ölçeği *internetin olumsuz sonuçları* alt boyutu ile gelişime açıklık, nörotiklik, cinsiyet ve yaş arasında pozitif düşük düzeyde, dışa dönüklük ile arasında pozitif orta düzeyde ilişki bulunurken, öz disiplin ile düşük düzeyde negatif korelasyon bulunmuştur. Problemli internet kullanımı ölçeği sosyal fayda/sosyal rahatlık alt boyutu ile gelişime açıklık, dışa dönüklük, öz disiplin arasında düşük düzeyde ve negatif bir ilişki görülürken, sürekli umut ve uyumluluk ile arasında negatif orta düzeyde bir ilişki görülmüştür. Nörotiklik ve yaş arasında ise pozitif ve düşük düzeyde ilişki bulunmuştur.

*Araştırmanın Sonuç ve Önerileri:* Bu çalışmada üniversite öğrencilerinin problemli internet kullanım davranışları ile kişilik özellikleri, cinsiyet, yaş ve sürekli umut düzeyi arasındaki ilişki araştırılmıştır. Yapılan analizler sonucunda kişilik özelliklerinden nörotiklik, aşırı internet kullanımını pozitif ve düşük yönde yordarken, özdisiplinin negatif yönde orta düzeyde yordadığı görülmüştür. Bir diğer deyişle bireylerde nörotiklik arttıkça aşırı internet kullanımı artarken, özdisiplin arttıkça aşırı internet kullanımı azalmaktadır. İnternetin olumsuz sonuçları ile ilgili bulgulara bakınca, gelişime açıklık, dışa dönüklük ve nörotiklik arttıkça internetin olumsuz sonuçlarından etkilenme artarken, öz disiplin arttıkça internetin olumsuz sonuçlarından etkilenme azalmaktadır. Aynı zamanda umut düzeyi arttıkça internetin olumsuz sonuçlarından etkilenme düzeyinin de azaldığı söylenebilir. Sosyal fayda/rahatlık ile ilgili bulgular değerlendirildiğinde, uyumluluk ve özdisiplin sosyal fayda/sosyal rahatlık alt boyutunu negatif yönde ve düşük düzeyde yordamaktadır. Bir diğer değişle bireylerde uyumluluk ve öz disiplin arttıkça internetin sosyal fayda/rahatlık sağlamak amacıyla kullanımı azalmaktadır. Yaş değişkeni de pozitif yönde düşük düzeyde yordamaktadır. Aynı zamanda sürekli umut düzeyi ile internetin olumsuz sonuçları arasında negatif düşük düzeyde ilişki bulunmaktadır. Sonuçlar cinsiyet açısından değerlendirildiğinde, problemli internet kullanımının üç

boyutunda da cinsiyet yordayıcı değişken olarak anlamlı bulunmamıştır. Bulgular değerlendirildiğinde, özellikle kişilik özelliklerinden öz disiplinin problemli internet kullanımının tüm alt boyutlarında yordayıcı bir değişken olduğu ve problemli internet kullanımının düşük düzeyleri ile ilişkisi olduğu görülmüştür. Bu çerçevede özellikle son yıllarda internet kullanımının yaygınlığının giderek arttığı düşünüldüğünde, bireylerin gelişiminde öz disiplin sağlayabilecekleri unsurların araştırılması ve desteklenmesi önemli görülmektedir. Son yıllarda pozitif psikolojide önemli bir yer bulmaya başlayan umut kavramının da problemli internet kullanımında yordayıcı bir değişken olduğu görülmektedir. Bu çalışma kapsamında çalışma grubu olarak üniversite öğrencileri seçilmiştir. Lise grupları ve yetişkin grupları ile yapılan çalışmalarda çıkan sonuçların değerlendirilmesi de alana katkı sağlayacaktır. Ayrıca bu çalışmada internetin kullanım alanları ile cinsiyet arasındaki ilişkiler değerlendirilmemiştir. Gelecek çalışmalarda internetin farklı kullanım alanları ve problemli internet kullanımı arasındaki ilişkiler incelenebilir. Nitel veriler ile çalışmanın desteklenmesi de bireylerin problemli internet kullanım davranışlarını ayrıntılı olarak değerlendirilmesini sağlayacaktır.

*Anahtar Kelimeler:* İnternet Bağımlılığı, kişilik, umut, internetin aşırı kullanımı.

## The Relationship between Resilience and the Big Five Personality Traits in Emerging Adulthood

Hulya ERCAN[1]

| ARTICLE INFO | ABSTRACT |
|---|---|
| | **Purpose:** The factors related with resilience, which is an important element of positive psychology, are still being discussed. The main purpose of this study is to examine the relationship between the resilience levels of individuals in emerging adulthood and the big five personality traits. **Research Methods:** Using a quantitative approach, the present study has been conducted based on a correlational descriptive model. The study group consists of 392 undergraduate students. The participants were selected through a purposeful sampling method. The participants were asked to fill out personal information forms and the Resilience Scale for Adults and take an Adjective-Based Personality Test. The correlation, t-test and multiple linear regression analyses were conducted to establish the relationships between the variables. **Findings:** As a result of the analyses, relationships were established between the sub-dimensions of resilience and the sub-dimensions of big five personality traits at various levels that appeared to support the body of literature. |

On the other hand, it was found that all the sub-dimensions of the big five personality traits presented statistically significant differences based on being resilient or non-resilient. Lastly, it was established that three sub-dimensions of the big five personality traits—namely conscientiousness, neuroticism and extroversion—together accounted for 34% of the total resilience scores of the participants. **Implications for Research and Practice**: It can be argued that the findings thus achieved present indicators as to the use of big five personality traits in accounting for psychological resilience. For future studies, it is recommended that longitudinal studies in particular, be included for the purview of the research and that intercultural comparative studies be carried out.

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[1] Cumhuriyet University, TURKEY, hulya.ekin@gmail.com, **ORCID**: http://orcid.org/0000-0002-0442-4121.

## Introduction

When faced with various life challenges such as the death of a relative, chronic illnesses, harassment, assault, unemployment, etc., some individuals manage to cope with such conditions while others fail to do so. While one person has the strength to maintain their hopes and cling onto life in the face of an extremely painful situation, another person may not possess the same resolve and character when faced with even comparatively less painful situations, and they may quickly give up on life. The concept that is used to describe such difference in character between individuals is called resilience.

It can be said that resilience is one of the important subjects of positive psychology. Traditional psychology often emphasizes various negative conditions that give rise to the emergence of negative personality traits in people. However, such perspective is now being criticized by the discipline of positive psychology. Driven by a fundamentally humanistic point of view, positive psychology suggests that individuals may be able to preserve their mental health and cure their adjustment disorders through a number of innate and/or acquirable personality traits (Seligman & Csikszentmihalyi, 2000). As such, positive psychology dwells on the positive rather than the negative. Resilience, doubtless, represents a positive individual power.

The literature shows that the studies conducted on the concept of resilience go as far back as fifty years. It can be argued that the subject matter mostly falls into the purview of developmental psychologists and mental health professionals. More often than not, researchers focus on children at risk in terms of mental health and study their ability to stay alive, adjust to their conditions and develop positive personality traits despite the devastating experiences they went through (Goldstein & Brooks, 2005).

The studies on resilience go as far back as the mid-50s when 698 babies of various racial backgrounds and mental risks born on the Hawaiian island of Kauai in 1955 were singled out to be monitored well into their mid-adulthood. Conducted by Werner and Smith, the study found that one third of the children managed to become competent adults despite the various setbacks they had to suffer (Werner, 2005; Werner & Smith, 1992). The first wave of studies that followed thereafter focused largely on individual capacity. In those studies, risk factors and protective factors were associated with the individuals' ability to cope with challenging conditions. The second wave of studies, on the other hand, dwelt mostly on contextual conditions, addressing the issue in terms of resilience and developmental and ecological systems (Exenberg & Juen, 2014; Ungar, 2012; Wright & Masten, 2005). This particular perspective supports the idea that resilience cannot be attributed to a single factor; it is, rather, a product of the mutual interaction between the individual and his/her environment.

In a similar vein, the studies conducted on resilience tend to approach the subject matter in terms of personal or familial characteristics or in terms of processing, functioning or outward behaviors. That being said, three factors stand out in these studies in general (Haase, 2004). The first of these factors is personal characteristics. They include general health, genetic predisposition, temperament, coping skills,

personality traits, communication skills, cognitive functions and so on. The second factor is familial characteristics, which include the household environment, parental approaches and close ties to certain family members. The third factor is the system of external support, which include friends, teachers, neighbours or others who lend a helping hand in overcoming the hardships one faces as well as various other social resources such as preschool programs, healthcare services and social services (Mandleco & Perry, 2000; Olsson, Bond, Burns, Vella-Brodrickc, & Sawyer, 2003; Werner & Johnson, 1999; Wright & Masten, 2005; Zautra, Hall, & Murray, 2010). A model containing these three factors was developed by Friborg, Barlaug, Martinussen, Rosenvinge and Hjemdal (2005) with a view of accounting for resilience. The model in question includes six dimensions: perception of self, perception of future, structured style, social competence, family cohesion and social resources. Perception of self involves one's view of his/her own identity. Perception of future concerns one's positive outlook towards the future. Structured style involves such strong individual qualities as self-confidence and self-discipline. Social competence represents adequate support received from one's immediate environment. Family cohesion is a factor associated with the harmonious relationships and family support maintained between an individual and his/her family. Social resources represent the quality of one's social relationships.

Resilience is an interesting concept in that it addresses the question, why do some people become all the stronger due to the hardships they had to deal with while others are simply fall apart as a result of the same experiences (Neenan, 2009). At the same time, it is a tough concept because it is still yet to be conclusively defined (Kaplan, 2005; Neenan, 2009). One of the reasons for the latter is that the definitions developed thus far are mostly based on the findings of studies rather than on a theoretical framework (Ahern, Kiehl, Sole, & Byers, 2006). That being said, resilience can, nevertheless, be used to define a set of characteristics that would lead to shaping positive outcomes even when the development or cohesion of individuals is seriously threatened. Resilient individuals are capable of attaining physical, psychological and social balance in a shortly after stressful experiences (Masten, 2001; Rutter, 1987) and of moving forward even when they are faced with challenges (Bonanno, 2004; Goldstein & Brooks, 2005). For this reason, the following three types of persons are considered with respect to the concept of resilience: those who possess the desired qualities despite being under risk, those capable of maintaining positive cohesion despite stressful living conditions, and those who manage to preserve their mental well-being in the aftermath of the trauma they experienced (Masten, Best, & Garmezy, 1990). Such qualities that enable resilient individuals to cope with negative conditions may have to do with their contextual conditions or their own personal qualities. As a personal quality, personality traits are also one of the most significant determinants of resilience (Miller & Harrington, 2011).

Personality has always been one of the most interesting topics of psychology throughout the history of the discipline. The concept is currently used to describe the socially acceptable behaviour patterns and inner personality processes resulting from the individuals themselves (Burger, 2006). There are doubtless many theoretical

definitions on the subject of personality. Although not quite accepted as a typical theory but nevertheless considered among the distinctive trait approaches, the Big Five Model (Five Factor Model) has frequently been used in recent studies conducted on personality (Peterson & Seligman, 2004). The present study also addresses the personality trait variable, which is believed to be related to resilience, in line with the big five perspective.

The origins of the big five model can be traced back to the ancient Greek philosopher Theophrastus who tried to distinguish the most fundamental dispositions and classify the types of personality. In the Big Five Model, personality is evaluated in accordance with the lexical tradition (McCrae & Costa, 1997; Saucier & Goldberg, 2001). Established by Francis Galton, among others, this tradition argues that significant individual differences can be codified according to the terms of a given language (Goldberg, 1990). Despite some criticism (Block, 1995), various researchers trying to identify basic personality traits based on this perspective have found evidence of the existence of these five dimensions of personality by using various different data sets (McCrae & Costa, 1997). Due to the frequent mention of such dimensions in the relevant studies, they were named the "Big Five".

Despite the fact that researchers have used various different concepts to designate the five factors that stand out with respect to personality traits, the most frequently used ones are neuroticism, extroversion, openness to experience, agreeableness and conscientiousness (Burger, 2006). Neuroticism includes such traits as anxiety, insecurity, self-doubt, short temper and instability. Extroversion includes such traits as sociability, talkativeness, congeniality, liveliness, gregariousness and self-confidence. Openness to experience is characterized by creativeness, imaginativeness, curiosity, having a broad area of interest, willingness to take up challenges and being intellectual. Agreeableness is characterized by helpfulness, courteousness, being successful in interpersonal relationships and openness to cooperation. Conscientiousness is described by qualities such as dutifulness, scrupulousness, orderliness, resourcefulness, single-mindedness, accountableness, industriousness and willingness to achieve goals (Goldberg, 1990; McCrae & Costa, 1987).

When the literature on resilience is reviewed, it is observed that the studies conducted on the subject matter addressed the issue according to various variables, including sense of well-being, cohesion, despair, perfectionism, self-respect, satisfaction with life, focus on control, coping and social support (Gurgan, 2014; Kaba & Keklik, 2016; Karairmak, & Sivis-Cetinkaya, 2011; Karatas & Savi Cakar, 2011; Malkoc & Yalcın, 2015; Surucu & Bacanli, 2010; Terzi, 2008; Tumlu & Recepoglu, 2013). However, despite the frequent use of the big five model in personality studies, the actual number of studies conducted based on this model is few and far between (Campbell-Sills, Cohan, & Stein, 2006; Nakaya, Oshio & Kaneko, 2006).

The present study assumes that resilience is a product of the interaction between personality traits and environmental conditions and is of the opinion that personality traits are important in terms of identifying resilience levels. This study seeks to find answers to the following four questions:

1. Does the level of resilience differ based on sex?

2. Is there a relationship between resilience and the big five personality traits?

3. Do the big five personality traits differ based on the level of resilience?

4. Do the big five personality traits predict resilience?

Granted, there are always problems and risk factors for developmental and mental health that cannot be easily eliminated. However, it seems important to promote individuals' ability to confront, cope with and overcome hardships and thereby achieve positive outcomes and attain good developmental characteristics. In this respect, it is believed that the present study may contribute to the literature with respect to the role of personal traits in resilience through the aforementioned study questions and present findings as to whether the individuals' personality traits provide hints for predicting their resilience levels.

## Method

*Research Design*

Using a quantitative approach, the present study has been conducted based on a correlational descriptive study. The correlational model aims to present the relationships existing between two or multiple variables without interference. More detailed information can be obtained regarding the relationships between the variables by using various different techniques should the need arise (Cresswell, 2009).

*Research Sample*

The study group consists of the students enrolled in a full-time undergraduate program at Cumhuriyet University during the 2013–2014 academic year. The participants were selected via a purposeful sampling method. In a purposeful sampling method, the researcher attempts to collect samples from the individuals whom he/she believes to possess the required demographic characteristics of the study population (Johnson & Christensen, 2014). In this study, data was collected from 410 individuals. Twelve of whom had to be excluded from the study as they failed to fill out the scales properly, and the data obtained from 6 individuals had to be excluded from the analysis as they represented extreme values (such as <1% and > 99%). As a result, the analyses were performed on the data obtained from 392 individuals. The demographic details pertaining to the participants are presented in Table 1.

**Table 1**

*Demographic Details of the Participants*

| Variables | F | % | M | SD |
|---|---|---|---|---|
| Age | | | 21.43 | 1.56 |
| Sex | | | | |
|    Female | 238 | 60.7 | | |
|    Male | 154 | 39.3 | | |
| Faculty | | | | |
|    Vocational School of Higher Ed. | 116 | 29.6 | | |
|    Faculty of Science | 77 | 19.6 | | |
|    Faculty of Education | 71 | 18.1 | | |
|    Faculty of Economics and Adm. Sciences | 59 | 15.1 | | |
|    Faculty of Letters | 44 | 11.2 | | |
|    Faculty of Engineering | 25 | 6.4 | | |
|    Total | 392 | 100 | | |

*Research Instruments and Procedures*

In order to collect data, a personal information form containing questions regarding age, gender and department, a "Psychological Resilience Scale for Adults" (Friborg et al., 2005) and an "Adjective-Based Personality Test" were used. The Psychological Resilience Scale for Adults was regarded as one of the three best psychometric assessment instruments by Windle, Bennet and Noyes (2011) in their study evaluating 19 existing psychological resilience scales. The scale in question was adapted to a Turkish context by Basım and Cetin (2010). The adaptation study was conducted with the participation of 350 university students and 262 employees. As a result of the confirmatory factor analysis, a six factor model — containing the dimensions of "Perception of Self", "Perception of Future", "Structured Style", "Social Competence", "Family Cohesion" and "Social Resources" — was verified ($x^2$= 1104, df=480, $x^2$/df=2,3; RMSA=.055; TLI=.90; CFI=.91). It was found that the test-retest reliability coefficients of the scale's sub-dimensions ranged from .68 to .81 while the internal consistency coefficients ranged from .66 to .81. The Social Comparison Scale and Control Focus Scale were used to test the compliance validity of the scale. The reliability coefficients were recalculated based on data obtained from the aforementioned test, and the internal consistency coefficients of the scale's sub dimensions were found to have ranged between .52 and .73, while the Cronbach's Alpha coefficient for the entire scale was established as .84. The scale, consisting of a total of 33 items, is a 5-point likert type scale, in which 16 items are reverse scored. The total score obtained from the scale represents the individuals' psychological resilience levels.

The Adjective-Based Personality Test was developed by Bacanli, Ilhan and Aslan (2009), based on a five-factor model, as a result of the study conducted with the participation of 285 university students. As a result of the Exploratory Factor Analysis, it was established that the five factors accounted for 52.63% of the variance pertaining to the ABPT. The five factors in question include following: extroversion, neuroticism, conscientiousness, agreeableness and openness to experience. It was found that the test-retest reliability coefficients of the scale's sub-dimensions ranged from .68 to .86,

while the internal consistency coefficients ranged from .73 to .89. The following scales and assessment tools were used to test the compliance validity of the scale: Sociotropy Scale, Reaction to Conflicts Scale, Negative-Positive Emotion Scale and Continuous Anxiety Inventory. The reliability coefficients were recalculated based on data obtained from the aforementioned test, as a result of which the Cronbach's Alpha coefficients of the scale's sub dimensions were found to have ranged between .68 and .85, while the Cronbach's Alpha coefficient for the entire scale was established to be .85. The scale, consisting of opposite adjective pairs, contains 40 items. As such, the scale items are bipolar and the responses are scored on a likert type scale of 1 to 7.

The scales were distributed among the participants, who were briefed as to the purpose of the study. The implementation period varied between 20 and 25 minutes at each session. After the implementation, the scales filled out by the participants were collected by the researcher.

*Data Analysis*

The SPSS 17.00 software pack was used in the analysis of the research data. Descriptive statistics were initially developed based on the available data. As a result of the analysis, it was established that the missing data was distributed randomly, which was then completed by using a series average. The results of the descriptive statistics showed that the arithmetic mean, median, and minimum and maximum values of the scores obtained by the participants on the resilience scale were 131.70 (SD=.85), 133, 89 and 163, respectively. The values of kurtosis and skewness were found to be -.52 and -.46, respectively. Lastly, the Histogram and Q-Q Plot were drawn, and it was observed that the distribution of scores was close to normal. In this respect, it can be argued that the findings thus obtained met the assumption of normality. Figure 1 shows the Histogram, whereas the Figure 2 presents the Normal Q-Q Plot.
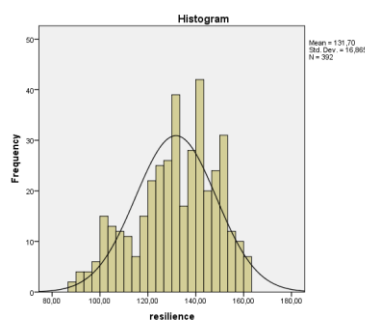


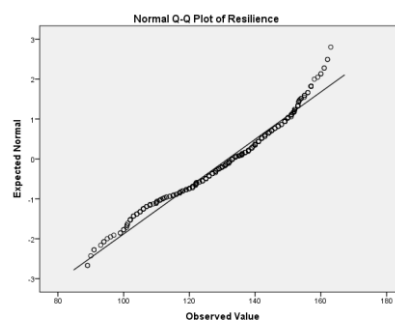Figure 1. Histogram                                      Figure 2. Normal Q-Q Plot

Since the analysis results adequately met the criteria specified by Can (2014), the data was considered to have been distributed normally. In order to classify people as resilient or non-resilient, their total resilience median values were taken as a point of reference (Can, 2014). To compare resilience levels in terms of sex and personality traits

in terms of being resilient or non-resilient, an unrelated sample t-test was performed. A correlation analysis was conducted among the sub-dimensions of both scales as well as between the total resilience score and the sub-dimensions of personality traits for the purpose of testing the relationship between resilience and personality traits. As for testing whether personality traits predict the level of resilience, a multiple linear regression analysis was conducted according to an enter method.

## Results

The first question of the study concerns whether the participants' resilience levels differed significantly based on sex. Table 2 presents the analysis results below.

\*\*p<.01

**Table 2**

*The t-Test Results for the Scores Obtained From the Sub-Dimensions of Resilience Based on Sex*

|  | Female (N=238) | | | Male (N=154) | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variables | M | SD | SE | M | SD | SE | df | t | p |
| Percept. of Self | 22.99 | 4.99 | .32 | 24.83 | 3.78 | .30 | 390 | -3.92\*\* | .00 |
| Percept. of Future | 16.07 | 3.62 | .23 | 15.82 | 2.98 | .24 | 390 | .73 | .46 |
| Structured Style | 14.43 | 3.87 | .25 | 14.82 | 3.60 | .29 | 390 | -1.01 | .31 |
| Social Compet. | 23.57 | 4.70 | .30 | 23.87 | 4.29 | .34 | 390 | -.64 | .52 |
| Family Cohesion | 24.65 | 5.09 | .33 | 24.34 | 4.34 | .35 | 390 | .63 | .53 |
| Social Resource | 29.20 | 4.05 | .26 | 29.24 | 4.09 | .33 | 390 | -.09 | .93 |
| Resilience Total | 130.91 | 17.83 | 1.16 | 132.92 | 15.22 | 1.23 | 390 | -1.15 | .25 |

According to the analysis results, the scores of one particular sub-dimension of the scale, namely 'perception of self', present a statistically significant difference in terms of sex ($t_{(390)}$=-3.92, p <.01). The average scores obtained by the male participants in the perception of self sub dimension (M=24.83, SD=3.78) are significantly higher than those of the female participants (M=22.99, SD=4.99). That being said, no statistically significant difference was observed in terms of sex in the scores obtained from the sub-dimensions of perception of future, structured style, social competence, family cohesion or social resources. A comparison of the total resilience scores (TRS) in terms of sex, too, failed to present any statistically significant difference.

The second question of the study concerns whether there is a statistically significant relationship between the participants' resilience levels and their personality traits. Table 3 presents the analysis results below.

**Table 3**

*The Correlation between the Scores of Resilience and Personality Traits*

| Variables | Neuro-ticism | Extrover-sion | Openness to Experience | Agreeable-ness | Conscien-tiousness |
|---|---|---|---|---|---|
| Perception of Self | -.30** | .39** | .32** | .09 | .36** |
| Perception of Future | -.26** | .24** | .20** | .20** | .35** |
| Structured Style | -.13* | .13* | .16** | .20** | .48** |
| Social Competence | -.28** | .48** | .37** | .25** | .12* |
| Family Cohesion | -.24** | .13* | .13* | .18** | .23** |
| Social Resources | -.18** | .25** | .21** | .21** | .28** |
| TRS | -.35** | .41** | .35** | .28** | .44** |

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

Table 3, presenting the correlation between the participants' scores of resilience and of personality traits, reveals relationships between the sub-dimensions of resilience and the sub-dimensions of personality traits at various different levels. According to the findings, there are statistically significant relationships among all personality traits save for the sub-dimensions of perception of self and agreeableness (ranging from r=-.30 to r=.39). Statistically significant relationships were established between the sub-dimension of perception of future and all the sub-dimensions of personality traits (ranging from r=-.26 to r=.35). Similarly, statistically significant relationships were established between the sub-dimension of structured style and all the sub-dimensions of personality traits (ranging from r=-.13 to r=.48). Statistically significant relationships were found between the sub-dimension of social competence and all the sub-dimensions of personality traits (ranging from r=-.28 to r=.48). Statistically significant relationships were identified between the sub-dimension of family cohesion and all the sub-dimensions of personality traits (ranging from r=-.24 to r=.23). Lastly, statistically significant relationships were established between the sub-dimension of social resources and all the sub-dimensions of personality traits (ranging from r=-.18 to r=0.28). Moreover, the following types of relationships were established between the TRS and the following five personality traits: a moderately negative and significant relationship between the TRS and neuroticism (r=-.35); a moderately positive and significant relationship between the TRS and extroversion (r=.41); a moderately positive and significant relationship between the TRS and openness to experience (r=.35); a low positive and significant relationship between the TRS and agreeableness (r=.28); and a moderately positive and significant relationship between the TRS and consciousness (r=.44). According to these findings, the scores of extroversion, openness to experience, agreeableness and conscientiousness increase

proportionally with an increase in the resilience scores, while the scores of neuroticism decrease by the same ratio.

The third question of the study concerns whether the big five personality traits differ depending on individuals' being resilient or not. Those who were below the median value (median= 133.00) were classified as non-resilient individuals, while those at and above the median value were classified as resilient individuals. According to this classification, the average scores of non-resilient individuals were found as M=117.36 (SD=11.60), and the average scores of resilient individuals as M=144.92 (SD=7.61). Table 4 presents the analysis results below.

**Table 4**

*The t-Test Results for the Big Five Personality Traits in terms of Resilience*

| Variables | Non-resilient (N=188) | | | Resilient (N=204) | | | df | t | p |
|---|---|---|---|---|---|---|---|---|---|
| | M | SD | SE | M | SD | SE | | | |
| Neuroticism | 26.20 | 7.56 | .55 | 21.65 | 7.06 | .49 | 390 | 6.17** | .00 |
| Extroversion | 44.41 | 9.84 | .72 | 51.02 | 7.69 | .54 | 390 | -7.45** | .00 |
| Openness to Experience | 39.56 | 7.50 | .55 | 44.24 | 5.86 | .41 | 390 | -6.91** | .00 |
| Agreeableness | 46.53 | 8.78 | .64 | 50.63 | 8.51 | .60 | 390 | -4.70** | .00 |
| Conscientious. | 35.90 | 7.39 | .54 | 41.37 | 5.80 | .41 | 390 | -8.19** | .00 |

**p <.01

According to the results of the analysis, all the sub-dimensions of big five personality traits present statistically significant differences based on being resilient or non-resilient. The average scores of non-resilient individuals in the sub-dimensions of extroversion ($t_{(390)}$=-7.45, p<.01), openness to experience ($t_{(390)}$=-6.91, p<.01), agreeableness ($t_{(390)}$=-4.70, p<.01) and conscientiousness ($t_{(390)}$=-8.19, p<.01) are lower than those of resilient individuals. Only the average scores of non-resilient individuals in the sub-dimension of neuroticism are higher than the average scores of resilient individuals ($t_{(390)}$= 6.17, p<.01).

The fourth question of the study concerns whether the participants' personality traits predict their resilience levels. In this respect, a multiple linear regression analysis was performed by entering the five dimensions of personality traits into the analysis as predictor variables. The initial analysis found that the dimensions of agreeableness (B=.03, $SE_B$=.09, β=.02, t=.35, p>.05) and openness to experience (B=.10, $SE_B$=.14, β=.04, t=.74, p>.05) were not statistically significant predictors of resilience level. Having removed the dimensions of agreeableness and openness to experience from the analysis, the results of the subsequently conducted analysis are presented in Table 5 below.

**Table 5**

*The Results of the Regression Analysis on Prediction of Resilience Levels through Personality Traits*

| Model | B | $SE_B$ | β | t | p | Zero-ord. r | Partial r |
|---|---|---|---|---|---|---|---|
| Constant | 98.91 | 5.05 | | 19.58 | .00 | | |
| Conscientiousness | .70 | .11 | .30 | 6.35 | .00 | .44 | .31 |
| Neuroticism | -.67 | .09 | -.30 | -7.31 | .00 | -.35 | -.35 |
| Extroversion | .45 | .08 | .25 | 5.36 | .00 | .41 | .26 |

R= .58, R²= .34
$F_{(3-388)}$= 66.73  p= .00

The results reveal a statistically significant relationship between the variables of conscientiousness, neuroticism and extroversion and the participants' resilience scores (R=.58, R²= .34, p<.01). These three personality traits together account for 34% of the total variance in resilience ($F_{(3-388)}$=66.73, p<.01). According to the standardized regression coefficient (β), the order of relative importance of predictor variables on resilience is as follows: neuroticism (β= -.30, p<.01), conscientiousness (β= .30, p<.01) and extroversion (β=.25, p<.01).

## Discussion and Conclusion

This study was conducted based on the premise that resilience is the product of the interaction between personal traits and environmental conditions. This study examined whether the resilience scores differed based on sex, if there was a relationship between the sub dimensions of resilience and the sub dimensions of the big five personality traits, whether the sub dimensions of personality traits differed depending on individuals being resilient or not resilient and whether the big five personality traits were instrumental in predicting resilience levels.

After having developed descriptive statistics based on the available data, an unrelated sample t-test analysis was performed to compare the resilience scores in terms of sex. As a result of the analysis, it was found that the average scores of resilience sub-dimensions did not differ significantly based on sex except for the dimension of perception of self. In a similar vein, the TRS failed to present a significant different based on sex. The finding that resilience scores did not differ in any sub-dimension with the exception of perception of self is consistent with the findings of previous studies (Chan, 2003; Crowley et al., 2003; Cetin et al., 2015; Harrisson et al., 2002; Maddi et al., 2006). The fact that male participants' scores in the sub-dimension of perception of self were higher than that of female participants may have to do with the societal characteristics of the group participating in the study. Boys are still, to some extent, favored over girls in undereducated Anatolian families, especially in rural areas, and this attitude is evidently influential in raising children in said regions

(Kagitcibasi, 1990). Thus the aforementioned fact may have played a role in driving male participants to present a more positive self-perception as compared to the female participants.

The present study also examined the relationship between the sub-dimensions of resilience and the sub-dimensions of personality traits by using the correlation technique. As a result of the analysis, a relationship was established in both groups of variables at various levels. This finding, in general, supports the notion that resilience is related to personality traits. The fact that the neuroticism dimension of personality traits is in a negatively significant relationship with all the sub-dimensions of resilience is consistent with the findings of previous studies (Campbell-Sills, et all., 2006; Cetin et al., 2015; Friborg et al., 2005; Shi, Liu, Wang, &Wang, 2015). Resilience is about being capable of finding a balance and moving on in a short space of time following stressful life events. The sub-dimensions of neuroticism, on the other hand, include such qualities as negative emotions, anxiety, insecurity, weak coping skills and having difficulty maintaining control over one's impulses. While individuals with higher neuroticism levels are more easily affected by emotional stress and the cases of affective disorder, those with lower neuroticism levels are capable of coping with stress a lot easier and have the ability to preserve and maintain their emotional balance (Costa & McCrae, 1992). In this respect, it is not that surprising that there should be a negative relationship between the scores of neuroticism and resilience.

On the other hand, a statistically significant and positive relationship was established between almost all the sub-dimensions of resilience and the remaining personality traits: extroversion, openness to experience, agreeableness and conscientiousness. Such findings are consistent with the findings of previous studies. (Campbell-Sills et al., 2006; Cetin et al., 2015; Friborg, et al., 2005; Shi et al, 2015). Since extroversion involves predisposition to positive emotions, maintaining close interpersonal relationships, high social interaction skills and activities, it is expected to be relevant to resilience. It can be argued that positive emotions play a significant role particularly in enabling individuals to deal with stressful experiences (Tugade & Fredrickson, 2004). Since the individuals who possess positive emotions have a wide variety of intellectual and practical tools at their disposal even under stressful situations, such experiences may even further strengthen their resilience (Fredrickson, 2001). Having the ability to think more flexibly and possessing a wider range of options, it stands to reason that extroverted individuals will have more personal resources to employ when faced with challenges and hardships. Moreover, thanks to social skills and maintaining close personal relationships, extroverted persons will also have the advantage of reaching out for the social support they need when coping with hardships. Therefore, their tendency to build strong social support networks makes it easier for extroverted individuals to attain such important protective factors in times of stress (Rutter, 1985). Of the aforementioned personality traits, openness to experience is perhaps the most difficult dimension to identify, and the scholarly debates regarding this dimension are still ongoing (Somer, 1998). Those who are open to experience stand against rigid rules, do not tend to obey rules without questioning them; have a critical mind, are not conservative in orientation, and are willing to

experience new and different things; they tend to be intellectual, autonomous, independent and unique in their own right. In this respect, the ability on the part of the individuals who are open to experiences to take a critical stance in the face of challenging life events, to have the courage to try out different options, and to be willing to come up with their own solutions and be creative may explain why they are more resilient than other types of people. Agreeableness is yet another personality trait that is related to resilience. Agreeable individuals are compassionate, helpful, open to cooperation and courteous. Such qualities they possess may play a role in enabling them to experience less conflict in their interpersonal relationships, to be accepted more eagerly by their social environment and receive more emotional support therefrom. The individuals receiving more support are expected to be more resilient. The last personality trait that is related to resilience is conscientiousness. Conscientiousness is characterized by being plan-oriented, organized, patient, diligent, tenacious and resolute. Conscientious individuals are goal-driven and success-oriented people who zero in on their objectives and take action. Conscientiousness enables individuals to both take action and focus on certain points. While the desire for success and single-mindedness diligence represent the progressive side of conscientiousness, being guarded and scrupulous is related to being focused (Somer, 1998). Therefore, such individuals have a significant potential that will help them achieve success. It can be suggested that such individuals are equipped with significant qualities that are likely to help them overcome undesirable circumstances when faced with challenging life events. From this perspective, conscientiousness can be regarded as a quality that contributes to their level of resilience.

The third step of this study involved the comparison of the scores obtained from the sub-dimensions of personality traits based on the classification of resilient/non-resilient by using the unrelated samples' t-test. As a result of the analysis, it was established that all the sub-dimensions of personality traits significantly differed in terms of being resilient or non-resilient. While the average scores of those who were classified as resilient individuals in terms of four personality traits (extroversion, openness to experience, conscientiousness and agreeableness) were significantly high, the average scores of those who were classified as non-resilient individuals in terms of only one personality trait (neuroticism) was significantly high as well. In their study where they compared resilient and non-resilient individuals, Riolli, Savicki and Cepani (2002) found statistically significant differences in the dimensions of neuroticism, openness to experience, conscientiousness and extroversion. In a similar vein, addressing the subject matter of resilience at three different levels (low, medium and high), Davey, Eaker and Walters (2003) found statistically significant differences in all dimensions of big five personality traits, which appear to be in parallel with the findings of this study. This particular finding of the study appears to be in support of the theoretical explanations. While resilient individuals are more extroverted, open to experience, conscientious and agreeable, the non-resilient individuals may be more neurotic in comparison.

Finally, a multiple linear regression analysis was conducted to test whether the big five personality traits predict resilience. The initial analysis result suggested that the dimensions of agreeableness and openness to experience were not significant predictors of resilience. The second analysis conducted thereafter found that the dimensions of conscientiousness, neuroticism and extroversion accounted for 34% of the total variance of resilience. The order of the relative importance of variables is as follows: neuroticism, conscientiousness and extroversion. This finding appears to be consistent with the findings of Nakaya et al. (2006), who conducted a study on adolescents, and the findings of the study conducted by Campbell-Sills et al. on young adults. Again, in the study where Cetin et al. (2015) examined the role of big five personality traits in account for resilience, they calculated the canonical loadings of variables and found that the dimensions of extroversion, neuroticism and self-discipline played a role in accounting for resilience. Renowned for their studies on the topic of resilience, Werner and Smith (2001) suggest that resilient individuals possess high social skills. Extroverted individuals are those who enjoy being in social environments, leave a positive impression on others and have the ability to smoothly engage in social interaction. In this respect one can predict that people having such social skills will be likely to have higher levels of resilience. Extroverted people are equipped with social skills and resources that will help them get the support they need whenever they are forced to cope with hardships. By this line of reasoning, it can be argued that extroversion may have a role in shaping resilience. The second personality trait that is regarded as an important predictor of resilience is neuroticism. Neurotic individuals tend to have a more negative self-perception of themselves, a lower self-respect, poor skills of organizing their emotions; they may find it harder to come to grips with the experiences that others take for granted and thus they may despair more easily. In this respect, the prevalence of qualities associated with neuroticism would appear to have a negative correlation with resilience. The third personality trait that predicts resilience is conscientiousness. Conscientious individuals are plan-oriented, patient and diligent (Werner & Smith, 1992). Owing to such characteristics, they may persist in their resolve and maintain their success even in the face of setbacks and inhibitions. Therefore, more conscientious individuals are expected to be more resilient.

In conclusion, it can be argued that the findings of this study present indicators suggesting that the big five personality traits can be employed functionally to account for resilience. Due to the fact that the findings of this study are consistent with those of the domestic and international literature, it can be suggested, as stated by Çetin et al. (2015), that the analysis offers evidence as to the generalizability of characteristics pertaining to resilience and personality. That being said, and as mentioned earlier, recent studies on resilience have mostly focused on contextual conditions. However, it can be argued that the notion put forward by the first wave of studies into resilience—that personality traits are a significant predictor of resilience—is still a valid one. The relatively stable personality traits that people possess are the significant determinants of their resilience levels. Moreover, the fact that personality traits only predict a certain percentage of resilience can be taken to mean that some other personal characteristics and contextual conditions other than personality traits may be at work

in determining resilience. This points to the suggestion made by Deater-Deckard, Ivy and Smith (2005) that resilience is not an innate characteristic, nor something that is acquired through experience; but rather, it is a product of the mutual interaction of the both elements.

Lastly, it should be mentioned there are some limitations to this study. First of all, the study group does not represent the entire population. For this reason, caution should be exercised in making generalizations of any kind. Second, by the very nature of the cross-sectional study pattern, it is possible to make a number of statements merely on the basis of the relationship between the variables. Third, since the data of this study is based mostly on the personal statements provided by individuals, one should not lose sight of the fact that there can always be a certain degree of margin of error in them.

A focus on longitudinal studies is encouraged for future research on the subject matter. Moreover, it is recommended that personality traits be addressed through various perspectives other than that of the big five; the subject matter be re-examined with different groups; and intercultural comparative studies, in particular, be carried out. Beyond a shadow of a doubt, an increase in volume and depth of studies on resilience will continue to provide significant data particularly in the field of developmental and mental health.

## References

Ahern, R.A., Kiehl, E.M., Sole, M.L., & Byers, J. (2006). A review of instruments measuring resilience. *Issues in Comprehensive Pediatric Nursing, 29*(2), 103-125.

Bacanli, H., Ilhan, T., & Aslan, S. (2009). Bes Faktor Kuramina dayali bir kisilik ölceginin geliştirilmesi: Sifatlara Dayali Kisilik Testi: SDKT [The development of a personality test based on the five factor theory: Adjective Based Personality Test: ABPT]. *Turk Egitim Bilimleri Dergisi, 7*(2), 261-279.

Basim, N., & Cetin, F. (2010). Yetiskinler icin Psikolojik Dayaniklilik Ölçegi'nin guvenilirlik ve gecerlilik calismasi [The reliability and validity of the Resilience Scale for Adults Turkish Version] *Turk Psikiyatri Dergisi, 22*, 1-13.

Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, 117(2), 187-215.

Bonanno, G.A. (2004). Loss, trauma, and human resilience. *American Psychologist*, *59*(1), 20-28.

Burger, J.M. (2006). Kisilik [Personality] (Cev: İ.D. Erguvan Sarıoglu). İstanbul: Kaknus Yayınlari.

Campbell-Sills, L. Cohan, S.L., & Stein, M.B.(2006). Relationship of Resilience to personality, coping, and psychiatric symptoms in young adults. *Behavior Research and Therapy*, 44, 585-599.

Can, A. (2014). *SPSS ile bilimsel arastirma surecinde nicel veri analizi [Quantitative data analysis by SPSS in the scientific research process]*. Ankara: Pegem Akademi.

Costa, P.T. & McCrae, R.R. (1992). Normal personality assessment clinical practice: The NEO Personality Inventory. *Psychological Assessment*, *4*(1), 5-13.

Cresswell, J.W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches.* Los Angeles: Sage Publications.

Cetin, N., Yeloglu, H.O., & Basim, H.N. (2015). The role of big five on predicting the resilience: A canonical relation analysis. *Turkish Journal of Psychology*, *30*(75), 81-95.

Davey, M., Eaker, D.G., & Walters, L.H. (2003). Resilience processes in adolescents: Personality profiles, self-worth, and coping. *Journal of Adolescent Research*, *18*(4), 347-362.

Deater-Deckard, K., Ivy, L., & Smith, J. (2005). Resilience in gene-environment transactions. In S. Goldstein& R.B. Brooks (Ed.), *Handbook of resilience in children* (p.3-15). 2nd Ed. New York: Springer.

Eley, D.S., Cloninger, C.R., Walters, L. Laurence, C. Synnott, R., & Wilkinson, D. (2013). The relationships between resilience and personality traits in doctors: Implications for enhancing well-being. *PeerJ*:1e216 http://doi.org/10.7717/peerj.216.

Exenberg, S., & Juen, B. (2014). *Well-Being, resilience and quality of life from children's perspectives a contextualized approach*. Dordrecht: Springer.

Friborg, O., Barlaug, D., Martinussen, M., Rosenvinge, J.H., & Hjemdal, O. (2005). Resilience in relation to personality and intelligence. *International Journal of Methods in Psychiatric Research, 14*(1), 29-42.

Goldberg, L.R. (1990). An alternative "description of personality": The big-five factor structure. *Journal of Personality and Social Psychology*, *59*(6), 1216-1229.

Goldstein S., & Brooks, R.B. (2005). Why study resilience? In S. Goldstein & R.B. Brooks (Ed.), *Handbook of resilience in children* (p.3-15). 2nd Ed. New York: Springer.

Gurgan, U. (2014). Universite ögrencilerinin yilmazlik ve iyilik halinin bazi degiskenlere gore incelenmesi [The investigation of the resilience and wellness of university students according to some variables]. *E-Journal of New World Science Academy*, *9*(1), 18-35.

Haase, J.E. (2004). The adolescent resilience model as a guide to interventions. *Journal of Pediatric Oncology Nursing*, 21(5), 289-299.

Johnson, B. & Cristensen, L. (2014). *Educational research: Qualitative, quantitative, and mixed approaches*. California: Sage Publications.

Kaba, I. & Keklik, I. (2016). Ogrencilerin Universite Yasamina Uyumlarinda Psikolojik Dayaniklilik ve Psikolojik Belirtiler [Students Adaptation to University Life, Resilience and Psychological Symptoms]. *Hacettepe Universitesi Egitim Bilimleri Enstitusu Egitim Arastirmalari Dergisi*, *2*(2), 98-113.

Kagitcibasi, C. (1990). *Insan, aile, kultur [Human, family, culture]*. İstanbul: Remzi Kitabevi.

Kaplan, H.B. (2005). Understanding the concept of resilience. In S. Goldstein & R.B. Brooks (Ed.), *Handbook of resilience in children* (p.3-15). 2nd Ed. New York: Springer.

Karairmak, O. & Sivis-Cetinkaya, R. (2011). Benlik saygisinin ve denetim odaginin psikolojik saglamlik uzerine etkisi: Duygularin araci rolu [The effect of self-esteeem and locus of control on resilience: The mediating role of affects]. *Turk Psikolojik Danisma ve Rehberlik Dergisi*, *4*(35), 30-43.

Karatas, Z., & Saci Cakar, F. (2011). Self-esteem and hopelessness, and resiliency: An exploratory study of adolescents in Turkey. *International Education Studies, 4*(4), 84-91.

Malkoc, A. & Yalcin, I. (2015). Universite ögrencilerinde psikolojik dayaniklilik, sosyal destek, basa cikma ve iyi-olus arasindaki iliskiler [Relationships among resilience, social support, coping, and psychological well-being among university students]. *Turk Psikolojik Danisma ve Rehberlik Dergisi*, *5*(43), 35-43.

Mandleco, B.L., & Perry, J.C.(2000). An organizational framework for conceptualizing resilience in children. *Journal of Child and Adolescent Psychiatric Nursing*, *13*(3), 99-111.

Masten A.N., Best, K.M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology*, *2*(4), 425-444.

Masten, A.S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227-238.

McCrae, R.R., & Costa, P.T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, *52*(1), 81-90.

McCrae; R.R., & Costa, P.T. (1997). Personality trait structure as a human universal. *American Psychologist*, *52*(5), 509-516.

Miller, M.W., & Harrington, K.M. (2011). Personality factors in resilience to traumatic stress. In S.M. Soutwick, B.T. Litz, D. Charney, & M.J. Friedman (Ed.), *Resilience and mental health challenges across the lifespan* (p.56-74). Cambridge: Cambridge University Press.

Nakaya, M., Oshio, A., & Kaneko, H. (2006). Correlations for Adolescent Resilience Scale with big five personality traits. *Psychological Reports*, *98*(3), 927-930.

Neenan, M. (2009). *Developing resilience: A cognitive behavioral approach*. New York: Routledge.

Olsson, C.A., Bond, L., Burns, J.M., Vella-Brodrickc, D.A., & Sawyer, S.M. (2003). Adolescent resilience: A concept analysis. *Journal of Adolescence*, 26, 1–11.

Peterson, C. & Seligman, M.E.P. (2004). *Character strengths and virtues: A handbook and classification*. New York: Oxford University Press.

Riolli, L., Savicki, V., & Cepani, A. (2002). Resilience in the face of catastrophe: Optimism, personality, and coping in the Kosovo Crisis. *Journal of Applied Social Psychology,* 32(8), 1604-1627.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57(3), 316-331.

Rutter, M. (1985). Resilience in the face of adversity protective factors and resistance to psychiatric disorder. *British Journal of Psychiatry,* 147, 598-611.

Saucier, G. & Goldberg, L.R. (2001). Lexical studies of indigenous personality factors: Premises, products, andprospects. *Journal of Personality,* 69(6), 847-879.

Seligman, M.E.P. & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14.

Shi, M. Liu, L. Wang, Z.Y., & Wang, L. (2015). The mediating role of resilience in the relationship between big five personality and anxiety among Chinese medical students: A cross-sectional study, PLoS ONE 10(3): e0119916. doi:10.1371/journal.pone.0119916

Somer, O. (1998). Turkce'de kişilik özelliklerini tanimlayan sifatlarin yapisi ve bes faktor modeli [The structure of personality trait-descriptive adjectives in Turkish language and The Five Factor Model]. *Turk Psikoloji Dergisi*, 13(42), 17-32.

Surucu, M. & Bacanli, F. (2010). Universiteye uyumun psikolojik dayaniklilik ve demografik degiskenlere gore incelenmesi [An examination of university adjustment according to psychological hardiness and demographic variables]. *Gazi Universitesi Gazi Egitim Fakultesi Dergisi*, 30(2), 375-396.

Terzi, S. (2008). Universite ögrencilerinin psikolojik dayanikliliklari ve algiladiklari sosyal destek arasindaki iliski [The relationship between psychological hardiness and perceived social support of university students]. *Turk Psikolojik Danisma ve Rehberlik Dergisi*, 3(29), 1-11.

Tumlu, G.U., & Recepoglu, E. (2013). The relationship between psychological resilience and life satisfaction of university academic staff. *Journal of Higher Education and Science*, 3(3), 205-213.

Ungar, M. (2012). Social ecologies and their contribution to resilience. In M. Ungar (Ed.) *Social ecologies and resilience: A handbook of theory and practice* (p.13-32). New York: Springer.

Werner E.E., & Smith, R.S. (1992). *Overcoming the odds: High-risk children from birth to adulthood*. Ithaca: Cornel University Press.

Werner E.E., & Smith, R.S. (2001). *Journeys from childhood to midlife: Risk, resilience and recovery*. Ithaca: Cornel University Press.

# Beliren Yetişkinlik Döneminde Dayanıklılığın Büyük Beşli Kişilik Özellikleri ile İlişkisi

## Özet

*Problem Durumu:* Dayanıklılık, pozitif psikoloji alanının önemli araştırma konularından biridir. Konuya ilişkin henüz bütüncül bir kuram ortaya konamasa da çeşitli modeller ileri sürülmekte ve kavramın farklı tanımları yapılmaktadır. Bununla birlikte kavramın genel olarak bireylerin gelişim ve uyumlarının ciddi şekilde tehdit altında oldukları durumda bile olumlu çıktıların şekillenmesine yol açacak bir grup özelliği tanımlamak için kullanıldığı söylenebilir.

Son zamanların ilgi çeken konularından olan dayanıklılık konusunda üç grupta yer alan bireyler göz önünde bulundurulur: Risk altında bulunup istendik özellikler sergileyen bireyler, stresli yaşam olaylarına rağmen olumlu uyumu sürdürenler ve yaşadıkları travmaların ardından ruh sağlıklarını koruyabilenler. Bu durumda dayanıklılık bireylerin bağlamsal koşulları ile ilgili olabileceği gibi kişisel nitelikleri ile de ilişkili olabilir. Kişilik özellikleri de dayanıklılığı belirleyen önemli kişisel niteliklerden biridir. Kişilik konusunda farklı yaklaşımlar bulunmakla birlikte bu çalışmada Büyük Beşli Modeli temele alınmıştır. Büyük Beşli Modelinde beş temel faktör öne çıkar. Bunlar dışadönüklük, nevrotiklik, deneyime açıklık, uyumluluk ve sorumluluktur. Bu araştırmada dayanıklılığın kişilik özellikleri ve çevre koşullarının etkileşiminin bir ürünü olduğu varsayımı kabul edilmekte ve çalışmanın temel problemini, görece az sayıda araştırmaya konu olan dayanıklılık ile büyük beşli kişilik özellikleri arasındaki ilişkiler oluşturmaktadır.

*Araştırmanın Amacı:* Araştırmanın temel amacı beliren yetişkinlik dönemindeki bireylerin dayanıklılık düzeyleri ile büyük beşli kişilik özellikleri arasındaki ilişkileri incelemektir. Bu amaca ulaşmak için dört sorunun yanıtı aranmıştır. Bu sorular şunlardır: Dayanıklılık düzeyi cinsiyete göre farklılaşmakta mıdır? Dayanıklılık ile büyük beşli kişilik özellikleri ilişkili midir? Büyük beşli kişilik özellikleri dayanıklılık düzeyine göre farklılaşmakta mıdır? Büyük beşli kişilik özellikleri dayanıklılığı yordamakta mıdır?

*Araştırmanın Yöntemi:* Nicel yaklaşımın kullanıldığı bu çalışma, korelasyonel tarama desenine dayalı olarak gerçekleştirilmiştir. Araştırma örneklemi 2013-2014 öğretim yılında üniversite eğitimlerine devam eden 392 öğrenciden oluşmaktadır. Katılımcılar amaçlı örnekleme yoluyla belirlenmiştir. Araştırmada katılımcılara kişisel bilgi formu, Yetişkinler İçin Dayanıklılık Ölçeği ve Sıfatlara Dayalı Kişilik Testi uygulanmıştır. Katılımcıların 238'si (%60.7) kız, 154'ü (%39.3) erkektir, yaş aralıkları 18 ile 26 arasında değişmektedir ve yaş ortalamaları 21,43'tür (SS=1.57). Katılımcıların 116'sı (%29.6)

Meslek Yüksek Okulu, 77'si (%19.6) Fen Fakültesi, 71'i (%18.1) Eğitim Fakültesi, 59'u (%15.1) İktisadi İdari Bilimler Fakültesi, 44'ü (%11.2) Edebiyat Fakültesi ve 25'i (%6.4) Mühendislik Fakültesi öğrencisidir. Tanımlayıcı istatistiklerinin sonuçlarına göre katılımcıların dayanıklılık ölçeğinden aldıkları puanın aritmetik ortalaması 131.70 (SS=.85), medyanı 133, minimum değer 89, maksimum değer ise 163 olarak bulunmuştur. Analiz sonucunda verilerin basıklık değerinin -.52, çarpıklık değerinin -.46 olduğu tespit edilmiştir. Son olarak Histogram ve Normal Q-Q Grafiği çizilmiş ve puanların dağılımlarının normale yakın oldukları görülmüştür. Bu doğrultuda, elde edilen bulguların normallik varsayımını karşıladıkları söylenebilir. Araştırmada değişkenler arasındaki ilişkileri tespit edebilmek için korelasyon, t-testi ve çoklu doğrusal regresyon analizleri yapılmıştır.

*Araştırmanın Bulguları:* Araştırmanın ilk bulgusu, dayanıklılık ölçeği kendilik algısı alt boyutu puanlarının, cinsiyete göre anlamlı bir farklılık gösterdiği şeklindedir ($t_{(390)}$=-3.92, p <.01). Erkeklerin kendilik algısı puan ortalamaları, kadınların kendilik algısı puan ortalamalarından anlamlı düzeyde yüksektir. Bununla birlikte gelecek algısı, yapısal stil, sosyal yeterlilik, aile uyumu ve sosyal kaynaklar alt boyutu puanlarının cinsiyete göre anlamlı farklılık göstermemektedir.

Araştırmanın ikinci bulgusu, dayanıklılığın kendilik algısı alt boyutu ile uyumluluk alt boyutu dışında kalan bütün kişilik özellikleri arasında anlamlı ilişkiler olduğunu göstermektedir (r=-.30 ile r=.36). Gelecek algısı alt boyutu ile kişilik özelliklerinin bütün alt boyutları arasında anlamlı ilişkiler bulunmuştur (r=-.26 ile r= .35 arası). Yine yapısal stil alt boyutu ile kişilik özellikleri alt boyutlarının hepsi arasında anlamlı ilişkiler ortaya çıkmıştır (r=-.13 ile r=.48 arası). Sosyal yeterlilik alt boyutu ile kişilik özellikleri alt boyutlarının tamamı anlamlı ilişkiler göstermiştir (r=-.28 ile r=.48 arası). Aile uyumu ile yine bütün kişilik özellikleri alt boyutları arasında anlamlı ilişkililer tespit edilmiştir (r=-.24 ile r=.23 arası). Son olarak sosyal kaynaklar alt boyutu ile kişilik özelliklerinin alt boyutlarının hepsi arasında anlamlı ilişkiler ortaya çıkmıştır (r=-.18 ile r=.28 arası). Bunların yanında dayanıklılık ölçeğinden elde edilen toplam puan (DTP) ile nevrotiklik puanları arasında orta düzeyde negatif ve anlamlı (r=-.35), DTP-dışadönüklük arasında orta düzeyde pozitif ve anlamlı (r=.41), DTP-deneyime açıklık arasında orta düzeyde pozitif ve anlamlı (r=.35), DTP-uyumluluk arasında düşük düzeyde pozitif ve anlamlı (r=.28) DTP-sorumluluk arasında orta düzeyde pozitif ve anlamlı (r=.44), ilişkiler olduğu sonucuna ulaşılmıştır.

Araştırmanın üçüncü bulgusu, dayanıksız bireylerin kişilik özelliklerinin dışadönüklük ($t_{(390)}$=-7.45, p<.01), deneyime açıklık ($t_{(390)}$=-6.91, p<.01), uyumluluk ($t_{(390)}$=-4.70, p<.01) ve sorumluluk ($t_{(390)}$=-8.19, p<.01) alt boyutlarındaki puan ortalamalarının, dayanıklı bireylerin puan ortalamalarından daha düşük olduğunu göstermektedir. Sadece nevrotiklik alt boyutunda dayanıksız bireylerin puan ortalamaları dayanıklı bireylerin puan ortalamalarından daha yüksektir ($t_{(390)}$=6.17, p <.01).

Araştırmanın dördüncü bulgusu, sorumluluk, nevrotiklik ve dışadönüklük değişkenlerinin birlikte katılımcıların dayanıklılık puanları ile anlamlı ilişkiler gösterdiği şeklindedir (R=.58, $R^2$=.34, p<.01). Üç kişilik özelliği birlikte dayanıklılıktaki

toplam varyansın %34'ünü açıklamaktadır ($F_{(3-388)}$=66.73, p< .01). Standardize edilmiş regresyon katsayısına (β) göre yordayıcı değişkenlerin dayanıklılık üzerindeki göreli önem sırası nevrotiklik (β=-.30, p<.01), sorumluluk (β=.30, p<.01) ve dışadönüklüktür (β=.25, p<.01).

*Araştırmanın Sonuç ve Önerileri:* Sonuç olarak elde edilen bulguların, dayanıklılığı açıklamada büyük beşli kişilik özelliklerinin işlevsel olarak kullanılabileceğine ilişkin göstergeler sunduğu dile getirilebilir. Bulguların ulusal ve uluslararası alan yazınla tutarlılık göstermesi, dayanıklılık ve kişilikle ilgili özelliklerin genellenebilirliğine ilişkin kanıtlar sunduğu şeklinde yorumlanabilir. Son zamanlarda dayanıklılık konusundaki çalışmalar ağırlıklı olarak bağlamsal koşullara odaklanmakla birlikte bulgulara dayalı olarak, kişisel özelliklerin de dayanıklılığın önemli birer belirleyicisi olduğu yönündeki açıklamaların önemini koruduğu söylenebilir. Kişilerin sahip oldukları görece durağan kişilik özellikleri, onların dayanıklılık düzeylerinin önemli belirleyicilerindendir. Ayrıca kişilik özelliklerinin dayanıklılığın sadece belirli bir yüzdesini yordadığı bulgusu, kişilik özellikleri dışında birtakım kişisel özelliklerin ve bağlamsal koşullarında dayanıklılıkla ilişkili olacağına işaret ettiği şeklinde yorumlanabilir. Bu durumda dayanıklılık ne sadece doğuştan getirilen bir özelliktir, ne de deneyimle kazanılır; dayanıklılık her iki ögenin karşılıklı etkileşiminin bir ürünüdür.

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## The Viewpoints of Instructors about the Effects of Teacher Education Programs on Prospective Teachers' Affective Characteristics*

Pervin Oya TANERI[1]

| ARTICLE INFO | ABSTRACT |
|---|---|
| | **Purpose**: The affective skills in teacher education should pay attention and look for ways to include feelings, attitudes and beliefs of teachers in the discussion of effective teachers' competencies. This paper aims to reveal the perspectives of instructors about the teacher characteristics that prospective teachers will gain after taking the teacher education, and to uncover how these characteristics are related to the affective domain. **Research Methods:** A survey design was employed in this paper. Both qualitative and quantitative approaches were used to analyze the range of data collected. In the quantification of data from survey questionnaires, frequencies, percentages, means and standard deviations provided some general patterns in the data. The qualitative data gathered by open ended questions were analyzed by content analysis. |

**Findings:** Results showed that there are numerous affective competencies that are essential for prospective teachers to develop such as having positive attitudes towards the teaching profession, developing empathy, sensitivity, love, self-esteem and self-concept are vital for prospective teachers. However, none of the teacher education programs fully addressed all the affective needs of prospective teachers. **Implications for Research and Practice**: It is expected that the findings of this paper help the instructors and education policy makers to identify effect of affective domain in teacher education programs.

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[1] Çankırı Karatekin University, TURKEY, e-mail: sezoya@gmail.com, **ORCID:** http://orcid.org/0000-0003-3482-3868.

## Introduction

Old-fashioned education systems generally have disregarded the emotions of learners and concentrated on the cognitive skills of learners (Qi-rong 2010). Cognitive and affective skills, as fundamental skills to contribute learning, help to develop ways of inquiry, make students active, develop the sense of responsibility for their own learning, and produce continuing learning. Cognitive and affective learning are essential parts of a whole that cannot be separated from each other (LeBlanc and Gallavan 2009; Kaklauskas et al. 2015). Owen-Smith (2004) asserted that when learning processes include feelings, permanent learning is more probable to take place. While psychologists assert the importance of feelings in learning, many educators emphasize the cognitive domain, and disregard the affective domain in education (Adkins 2004; Owen-Smith 2004). All learning has both cognitive and affective components, thus, affective knowledge and skills are the most important responsibility of schools, as well as cognitive.

Teachers as agents of socialization are expected to have advanced skills in affective domain in addition to cognitive domain. Unless teachers address affective goals in their instruction, students may be skilled and may even be knowledgeable but may not reflect their feelings out. Although, teacher education programs intend to equip prospective teachers with the fundamental pedagogical and subject matter knowledge, the affective dimension is not crucial topic in the teacher education programs. Therefore, when they enter the profession many novice teachers have very limited knowledge about how they address affective goals in their curriculum. Similarly, teacher candidates face difficulties when determining behaviors related to affective domain. For that reason, the development of affective skills of prospective teachers should be inevitable concern of teacher education institutions.

Typically, most of the objectives of education could be placed in one of three major domains—cognitive, psychomotor, and affective. Teachers should use a range of integrated supports to modify instruction for individual differences and emphasize emotional significance of learning— affective domain—instead of only emphasizing cognitive domain.

There is some misunderstanding concerning the nature of affective learning. Affective learning has always been underestimated and relegated as a consequence of historical and cultural reasons (Weare 2004) and affective education generally devalued and ignored (Weare 2010). Goldfayl (1995) stated that the reasons for the general negligence of affective domain are affective skills are difficult to describe in design terms, and problematic to quantify in educational evaluative terms. Besides, as cognitive objectives are relatively easy to operationalize in behavioral terms, basic cognitive knowledge and skills has dominated in education.

According to LeBlanc and Gallavan (2009), when teachers accept that cognitive and affective domains are very different from each other, regrettably they keep one superior to the other. Since affective learning comprises emotions, feelings and values, it is generally perceived as excessively 'subjective'. Consequently, affective learning has always been considered more insignificant than the 'objective' cognitive learning.

The affective domain does not only include the feelings or emotions, but also embraces the ideas, values, attitudes, and beliefs as well as the viewpoints and philosophies that support the teaching practice.

The affective skills can significantly improve or constrain the student learning. The role of affective characteristics like attitudes, feelings, self-esteem, endurance, discipline, motivation or social skills on student success has only recently received growing interest. As said by Popham (2011) affective variables such as attitudes, interest and values have a great influence on future behaviors of students. Similarly, positive emotions like enjoyment of learning, hope for success, and pride of a given task cause more effective learning. Having positive attitudes towards learning motivated the students to follow learning in the future; therefore, one of the most important responsibilities of effective education is to provide conditions in which learners can build their self-esteem.

Owen-Smith (2004) stated that feelings have been almost omitted from most of educational practices in the classrooms.  It is also argued that feelings have both positive and negative effects on learning. On the one hand, the researchers claimed that students learn and perform more successfully when they feel secure, happy, and excited about the subject matter. If teachers express their positive feelings, it improves teaching self-efficacy. Accordingly, it is possible that happier teachers give enhanced education (Taxer and Frenzel 2015). Teacher enthusiasm explained as teachers' positive affective experiences with instruction has an influence on students' motivation and affective outcomes (Kunter, Frenzel, Nagy, Baumert, and Pekrun 2011; Keller, Goetz, Becker and Morger 2015). Students' intellectual self-concept and intrinsic motivation in learning are absolutely influenced by affective behaviors of teachers (Skaalvik and Skaalvik 2013). On the other hand, when students are too excited or enthusiastic, they might work carelessly or quickly rather than working methodologically or carefully, as a result feelings can hinder student learning (Darling-Hammond et al. 2003).

In addition to the studies mentioned above, researchers claimed that there is an intimate connection between learning and affective skills (Craig et al. 2004). Affective characteristics and affective support of teachers are decisive in long-term and effective learning (Sakiz, Pape, Hoy 2012; Kaklauskas et al.2015). Therefore, affective characteristics become one of the crucial competencies of an effective teacher that promote effective teaching and learning. Although the affective domain has been neglected in education, in order to make positive changes in dispositions, attitudes, values and ethical perspectives of students, the teachers should obtain information about the affective domain by sound and consistent assessment.

The competencies that intended to acquire by prospective teachers in teacher education programs are mainly focused on cognitive gains.  The affective skills of teachers are not a central theme in the teacher education programs. There are many affective competencies that are vital for prospective teachers to develop independently from specific subject knowledge matter. There are a few studies on affective characteristics of prospective teachers and their success in the teaching profession.

Teacher competencies such as aptitudes, abilities, attitudes, and knowledge of teachers influence what they do in their classroom. No matter how well the prospective teachers developed in cognitive skills, pedagogical skills and subject matter competence through teacher education, they are less likely to be able to use their cognitive skills and understanding across their instruction unless they have certain affective capabilities (Zigler 2001). The written curricula, preset materials, and detailed teacher guides exactly display the teachers what question to ask, what responses to expect, however, these are not of assistance to show the way how to cope with negative attitudes or feelings of students, how react off-the-topic questions or diverse interests, and how to increase motivation and self-esteem of students. The teachers might use affect management skills in their classrooms and other learning contexts by a trial and error process. Teachers can increase their effectiveness by considering the affective domain in planning lessons, delivering lectures and activities, and assessing student learning. Therefore, teacher education programs should intend to develop whole teacher competencies by emphasizing in affective domain equally the other domains.

Nowadays, some educators noticed the importance of the affective domain and recommended to regard it in educational processes. In their study, Cheng et al. (2002) claimed that teacher education programs should contain the affective, behavioral, and cognitive domains so as to increase teacher effectiveness. Teachers need to be able to respond to learners' feelings, because feelings have an impact on learning, they influence learners' capacity to process information and to precisely understand what they come across. Thus, it is vital for teachers to generate a positive and emotionally safe classroom climate in order to deliver the optimal learning opportunities to the students. As said by Cheng et al. (2002), teacher education and development programs intended to help prospective teachers to strengthen confidence as a teaching professional, increase satisfaction in teaching, improve personal promise to education, develop a sense of belonging to the school, and produce a caring atmosphere in the school.

Affective education is essential to foster value development (Wong et al. 2005). Teachers' values have an impact on what they teach, how they are to prepare students for the future and how they are going to cope with diverse students. Students automatically learn the ways that teachers act and the values that teachers have (Zigler 2001). Wong et al. (2005) maintained that since spiritual and moral growth of teachers directly affect how they teach their students, it is very significant to inspect what values prospective teachers gaining teacher education programs and how these values change during their course of study. In this sense, effective teachers improve both their own intellectual (cognitive) and moral (affective) growth as well as to their students' one (Zigler 2001). Hence, affective education should be an integral part of teacher education that enhances moral and spiritual development of prospective teachers (Wong et al. 2005). Teacher education programs should teach the knowledge, skills, and dispositions that all teachers need for affective education (LeBlanc and Gallavan 2009)

*Aim of the Paper*

This paper is intended to examine the viewpoints of instructors of teacher education institutions about the affective development of prospective teachers and its potential impact on learning to teach for values. The approach in this paper is not to define the skills, qualities, and competencies of effective teachers but rather to attempt to concentrate on what research and academicians thought about a proficient teacher.

The literature cites various characteristics of effective teachers from the perspectives of teachers, principals and students. However, hardly any studies highlight the opinions of instructors who teach prospective teachers. Similarly, there are a few studies on affective characteristics of prospective teachers and their success in the teaching profession. Therefore, this paper aims to reveal the perspectives of instructors about the teacher characteristics that prospective teachers will gain after taking the teacher education, and to uncover how these characteristics are related to the affective domain. With this aims the following research questions were formulated:

- According to the perspectives of instructors which characteristics the prospective teachers will gain after taking the teacher education?

- To what extent the characteristics expected the prospective teachers acquire are related to the affective domain?

## Method

*Research Design*

The current study primarily intended to reveal the perspectives of instructors about the teacher characteristics that prospective teachers will gain after taking the teacher education, and to uncover how these characteristics are related to the affective domain. Since surveys allow collecting information from or about people to describe, compare, or explain their knowledge, attitudes, and behavior a survey design was employed in this paper.

*Research Sample*

The participants of this paper were 220 instructors from teacher education institutions (that is, education faculties, educational sciences departments of science and arts faculties). They were randomly selected from teacher education institutions in 21 different cities which represent different all territorial units in Turkey. The participants comprised of 120 females (54.5%) and 100 males (45.5%). Their ages ranged from 21 to 67, with an average age of 42. More than half of the participants were assistant professors (50.5%), 10.5 percent of the participants were professors, 24.5 percent of them associate professors, and the remaining were pre-lecturers (14.5%). The participants had a wide range of experience (0.5 years to 34 years). They were working as an instructor at least one year. 25 percent of the instructors are working in Faculty of Education, and the remaining from Pedagogical Certification Programs.

*Research Instruments and Procedures*

In order to answer the research questions the Characteristics of Prospective Teachers Scale was developed by the researcher and distributed in 2013-2014 academic year. Before designing the instrument, competencies of effective teacher were converted into questions by mainly concentrating on social and emotional characteristics. Then, to represent characteristics of effective teachers two categories — cognitive and affective characteristics — were derived through the literature review.

*Validity and Reliability*

To establish content validity, first the questionnaire was checked through an analysis of relevant literature, and then eleven experts (for example, prospective teachers, instructors from educational administration, measurement and evaluation, psychological counseling and guidance, and curriculum and instruction) reviewed the questionnaire. Based on the suggestions of these judges the questionnaire was refined and the language clarified where necessary. The questionnaire consists of 10 items information data sheet, 25 items five points Likert type scale and one open-ended question. The reliability coefficient was estimated at .93.

An exploratory factor analysis (EFA) with a varimax rotation of the 25 Likert scale questions from the survey questionnaire was conducted on data gathered from 220 participants. An examination of the Kaiser-Meyer Olkin measure of sampling adequacy suggested that the sample was factorable (KMO=.861). Item 17 was excluded from the analysis because it had very close factor loads in two factors. When loadings less than 0.30 were excluded, the analysis yielded a four-factor solution with a simple structure (factor loadings = >.30). The rotated solutions yielded four interpretable factors — personal competencies, interpersonal competencies, professional skills, and self-concept. The reliability coefficients of these subscales were estimated at .97, .93, .93, and .81 respectively.

*Data Analysis*

Descriptive statistics were used in order to analyze the data from survey questionnaire. Since content analysis permit to understand better the perspectives of the respondents (Berg 2001), this method was used to analyze the qualitative data collected by open ended questions. During the analysis, a combination of content elements (that is, words, phrases, concepts, and paragraphs) were used. Direct quotations were used in reporting the findings. Each set of responses was shown by a number such as "#23".

## Results

Reviewing the data several remarkable findings emerged. These were explained in parallel with the research questions. The first research question of this paper was aimed at exploring the most frequently mentioned characteristics the prospective teachers will gain after taking the teacher education. To find an answer the first

research question the data were analyzed descriptively by using SPSS. That is, descriptive statistics such as frequencies, percentages, means and standard deviations. The mean scores ranged from 3.95 to 3.16 (out of 5). Higher mean scores demonstrate positive perspectives of instructors about to what extent the affective skills were developed by prospective teachers through the teacher education programs.

As previously disclosed in method section, factor analysis results revealed that the items of the scale could be grouped into four types of teacher characteristics: personal competencies, interpersonal competencies, professional skills, and self-concept.

The personal competencies contain creating positive learning environment, taking into consideration emotions, needs, interests, and curiosities of students, and having knowledge social, emotional, physical and mental developments of students. Results revealed that as stated by the instructors, prospective teachers can create warm, positive and humane learning environment (55.5 %), they can set the pace of teaching to ensure that the educational objectives achieved by everyone (53.6 %), might take into account the interest of students while teaching (52.7 %), keep in mind the needs of students during instruction (51.4%), familiar with social, emotional, physical and mental developments of students (50.9%), can create a democratic classroom environment (50.0%). On the other hand, nearly half of the instructors stated that prospective teachers could not take into account students' attitudes towards the lesson (40.1%) when they begin to work as teacher.

The interpersonal competencies include communicating effectively and building positive classroom climate and concerned the individual problems of students. Results revealed many of the instructors stated that communication skills are very important for prospective teachers. As indicated by the instructors, prospective teachers can positively communicate with the students (67.7%), with school staff (65.0%), and with parents (60.5%) positively and constructively. In relation to teachers' classroom behaviors instructors said that, teacher candidates may have tolerant attitudes in the classroom (63.6%), behave the students fairly and frankly (61.8%), and concerned with the individual problems of students (59.5%).

The professional skills cover teachers' abilities to enhance their instruction by using appropriate instructional materials and teaching methods, and to assess achievement of students objectively. Results revealed that according to the instructors, prospective teachers can prepare lesson plan (76.8%), can use information and communication technologies in lessons (74.5%), can prepare instructional materials that appropriate to lesson/subject (73.6%), can utilize teaching methods that appropriate to lesson/subject (72.7%), and can develop reliable and valid measurement tools to assess student achievement (68.2%).

The self-concept category includes building self-efficacy and self-esteem, having positive attitude towards the teaching profession, and having self-motivation and persistence to professional development. Results showed that the instructors believe in that teacher candidates develop beliefs about that himself/ herself would become a successful teacher, and loves teaching (74.1%), can undertake the teacher's duties, responsibilities, and roles in a good way (73.6%), confident that he/she can fulfill

his/her own professional responsibilities (72.3%), and knows the importance of participating in professional development activities (60.9%). On the other hand, the trusts of instructors are slightly less about the professional development of prospective teachers. They indicated that teacher candidates consider learning as a part of life (49.1%), and tries to follow publications that related to the teaching profession (48.2%).

The second research question of this paper was aimed at find out to what extent the characteristics expected the prospective teachers acquire are related to the affective domain. According to scholars, after completing teacher education program one teacher should obtain some affective domain skills such as positive attitudes, respect for the profession, and democratic behaviors. The instructors also stated that cognitive and affective skills are hard to separate from each other, thus, it is difficult to assess affective skills of the prospective teachers. One of the instructor points out why it is hard to address affective objectives in teacher education: "There is no agreement on affective characteristics of teachers. One cannot say that we can objectively assess the affective competencies of our student teachers. It is very difficult. (#36)"

As stated by the instructors, having positive attitudes towards the teaching profession, developing empathy, sensitivity, love, self-esteem and self-concept are vital for prospective teachers. The following quote exemplifies this finding: The teacher education programs expected to provide teacher candidates, positive attitudes, habits, perceptions and emotions. But we are unable to measure precisely to what extent we succeed this. (# 115)

Besides, moral development, and values of teachers are very important characteristics. On the word of one instructor, it is critical that prospective teachers have an understanding of the principles of democracy: Like other values, the students would learn the democratic values from their teachers. Therefore, the teachers should behave democratically in their classrooms. (#132)

Instructors stated that teachers should know the way how to address the diverse and similar interests of the students. One instructor explains why teachers should focus on students' diversity: (Teachers) should be conscious that we are in a multi-cultured society, and maintain the lessons with this awareness. (# 54)

Instructors also highlighted the importance of positive feelings about teaching profession: one said that "the most important criterion is to love the profession... (#56)"

One instructor reflects on her experience in teacher education: Neither cognitive nor affective competencies were gained by teacher education program, unless the candidate teachers respect to the profession. (Affective development) begins with love the profession. (# 86)

Results revealed that, in relation to some instructors, teaching profession requires personality characteristics as well as pedagogical and subject knowledge skills. Teacher education programs can only teach pedagogical knowledge and skills, but the personality characteristics. The teacher education programs (in Turkey) do not contributed to the affective development of prospective teachers, even do not in an effort to contribute to the affective domain (#17 and # 71). On the other hand, some

instructors suggested specific approaches in order to support prospective teachers to acquire affective skills.

One instructor asserted that many student-teachers cannot establish effective and accurate communication; therefore, they do not take pleasure from the profession. Since written examinations (essays) allow teacher candidates to express their thoughts and feelings, and help them to use the language correctly, this kind of assessments should be used in teacher education programs. (#18)

Another instructor suggested that in order to establish a balance between cognitive and affective domains in teacher education a variety of methods can be utilized. Techniques such as case studies, group work, discussion, presentation, and problem-based learning can be used to observe the reflections, responses, and attitudes of teacher candidates as indicators of their affective development. (# 126)

## Discussion and Conclusion

This paper provides an overview, from the perspectives of instructors about the teacher characteristics that prospective teachers will gain after taking the teacher education, and to discover how these characteristics are related to the affective domain. The findings of this research ascertained the extent to which teacher educators realized their institutions' effects on prospective teachers and personal and institutional factors that facilitated or hindered the prospective teachers' affective development. Even though learning objectives seem to be cognitive in nature there will always be affective or emotional skills involved (Duncan-Hewitt et al. 2007; Kaklauskas et al.2015). In this respect, many researchers mentioned eloquently about the close relationship between cognitive and affective domains and their studies clearly showed the intimate connection between the two domains (Duncan-Hewitt et al. 2007; LeBlanc and Gallavan 2009; Velea and Farca 2013).

The literature clearly indicates that the cognitive and affective domains are complementary to each other, so they cannot separate (Adkins 2004; Owen-Smith 2004; Duncan-Hewitt et al. 2007; LeBlanc and Gallavan 2009; Hyland 2014). The findings of this paper consistent with this notion; as stated by the instructors, the teacher education programs that generally emphasized on the pedagogical skills of prospective teachers should found equilibrium between the cognitive and affective domains. The successful teachers of the future are expected to be sensitive to the emotional state of learners.

As stated by the instructors, there are numerous affective competencies that are essential for prospective teachers to develop such as having positive attitudes towards the teaching profession, developing empathy, sensitivity, love, self-esteem and self-concept are vital for prospective teachers. These affective competencies are consistent with the literature that communicating effectively, self-motivation and persistence, resolving conflicts positively, building self-efficacy and self-esteem, developing moral values and character, building, and being a good citizen are necessary for teacher candidates (Johnson 2009; Kunter et al. 2011; Keller et al. 2015; Taxer and Frenzel 2015).

The current paper has implications for teacher education institutions. Instructors recommended that teacher education institutions can add a variety of activities in their curriculum to assess the affective characteristics of prospective teachers such as case studies, group work, discussion, presentation, and problem-based learning. Correspondingly, in his 2013 study on online education Olatunji, suggested that problem based learning, group analysis of case studies, perspective sharing and reflection should be integrated the education program in order to establish the balance between the affective and the cognitive domains. To achieve this integration will allow the assessment of affective characteristics. Taxer and Frenzel (2015) claimed that teacher training programs should include emotion regulation education so as to teach prospective teachers how to manage emotion-focused conditions in a vigorous way.

However, as previous studies have noted, since the cognitive and affective skills are hard to separate from each other, it is difficult to assess affective skills of the prospective teachers (Pierre and Oughton 2007). Instructors in this current paper also mention to the difficulty of measuring affective characteristics. Conversely, researchers argue that emphasizing merely cognitive characteristics has destructively impact the affective development of learners (Suissa 2008). Since students' cognitive, affective and social learning behaviors are affected by teachers' instructional, affective and social relationships with students (Farmer, Lines and Hamm 2011), to become successful in the teaching profession, not only cognitive skills but also affective skills are necessary.

Although data from this paper prove more suggestive than conclusive, it is hoped that some conclusions are necessary. First, instructors and education policy makers keep in mind the importance of affective domain and address the development of affective skills of prospective teachers in teacher education programs. Second, there is a good reason to believe in that the affective domain is often neglected in teacher education programs universally. Disregarding the affective competencies in teacher education will harm future generations, since values of teachers will affect the value development learners. The wider literature suggested raising awareness on the significance of affective domain. Perhaps most importantly, during the pre-service education prospective teachers should learn how to create a classroom climate that intentionally focuses on the affective as a vital and necessary aspect of the learning process. Finally, it is obvious that this paper offers only a modest beginning to understanding the importance of affective competencies of prospective teachers as elements of effective teacher education programs.

It is also important for educators to keep in mind that instructors should demonstrate a positive role model of affective teacher with their own behaviors, knowledge, skills, and dispositions. Teacher educators should show a high commitment to the education of the whole person, in the cognitive, affective, and psychomotor domains.

In a nutshell, the findings of this paper may help the curriculum development specialists to identify effect of affective domain in teacher education programs. Raising awareness about the importance of affective skills of teachers is not enough to increase

the quality of education. In order to support efforts of teachers and teacher educator in affective education, workshops can be offered, sessions can be organized in conferences related to affective education topics, and the number of publications about affective related topics can be increased.

Recommendations from this paper should be considered by policy makers and educators as they assess the impact of their programs for prospective teachers. It is strongly advised that educators conduct ongoing evaluations of their programs to be better able to monitor and address all prospective teachers' needs. Further studies may be conducted on the assessment methods of affective learning outcomes.

## References

Adkins, S.S. (2004). Beneath the tip of the iceberg: Technology plumbs the affective learning domain. *T+D Magazine [Online]*, 58, 28-33.

Berg, B. (2001). *Qualitative research methods for the social sciences*. London: Allyn and Bacon.

Cheng, Y., Tam, W., & Tsui, K. (2002). New conceptions of teacher effectiveness and teacher education in the new century. Hong Kong Teachers' Centre Journal, 1: 1-19.

Craig, S., Graesser, A., Sullins, J. & Gholson, B. (2004). Affect and learning: An exploratory look into the role of affect in learning with auto tutor. Learning, Media and Technology, 29: 241-250.

Darling-Hammond, L., Orcutt, S., Strobel, K., Kirsh, E., Lit, I., & Martin, D. (2003). Session 5. Feelings count: Emotions and learning. The Learning Classroom-Stanford University School of Education, 89-104.

Duncan-Hewitt, W., Leise, C. & Hall, A. (2007). Affective domain. In: Steven W Beyerlein, C

Holmes, C. & Apple, D. (Eds.). (2007). Faculty Guidebook: A Comprehensive Tool for Improving Faculty Performance. 4th Edition. Pacific Crest, Lisle, IL, pp. 213-216.

Farmer, T. W., Lines, M. M. & Hamm, J. V. (2011). Revealing the invisible hand: the role of teachers in children's peer experiences. Journal of Applied Developmental Psychology, 32: 247-256.

Goldfayl, D. (1995). Affective and Cognitive Domain Learning with Multimedia: Two Sides of the Same Coin. ASCILITE Conference, Melbourne.

Hyland, T. (2014). Mindfulness-based interventions and the affective domain of education. Educational Studies, 40: 1-15.

Kaklauskas, A., Kuzminske A, Zavadskas, E. K., Daniunas, A., Kaklauskas, G., Seniut, M., Raistenskis, J., Safonov, A., Kliukas, R., Juozapaitis, A., Radzeviciene, A.,

Cerkauskiene, R. (2015). Affective Tutoring System for Built Environment Management. Computers & Education, 82: 202-216.

Keller, M. M., Goetz, T., Becker, E. S. & Morger, V. (2015). Feeling and showing: A new conceptualization of dispositional teacher enthusiasm and its relation to students' interest. Learning and Instruction, 33: 29-38.

Kunter, M., Frenzel, A. C., Nagy, G., Baumert, J. & Pekrun, R. (2011). Teacher enthusiasm: dimensionality and context specificity. Contemporary Educational Psychology, 36: 289-301.

LeBlanc, P. R. & Gallavan, N. P. (2009). Affective Teacher Education: Exploring Connections among Knowledge, Skills, and Suppositions. New York: Rowman and Littlefield Education.

Olatunji, M. O. (2013). Teaching and assessing of affective characteristics: A critical missing link in online education. International Journal on New Trends in Education and Their Implications, 4: 96-107.

Owen-Smith, P. (2004). What is cognitive-affective learning (CAL)? Journal of Cognitive Affective Learning, 1:11.

Pierre, E., & Oughton, J. (2007). The affective domain: Undiscovered country. College Quarterly, 10: 1-7.

Popham, W. J. (2011). Classroom Assessment: What Teachers Need to Know? Boston, M.A: Pearson.

Qi-rong, C. (2010). Research on Intelligent Turing System Based on Affective Model. 2nd International Conference on Multimedia and Information Technology (MMIT). Kaifeng, China, April 24-25 2010.

Sakiz, G., Pape, S. J., & Hoy, A. W. (2012). Does perceived teacher affective support matter for middle school students in mathematics classrooms? Journal of School Psychology, 50: 235- 255.

Skaalvik, E.M., & Skaalvik, S. (2013). School goal structure: Associations with students' perceptions of their teachers as emotionally supportive, academic self-concept, intrinsic motivation, effort, and help-seeking behavior. International Journal of Educational Research, 61: 5- 14.

Suissa, J. (2008). Lessons from a new science? On teaching happiness in schools. Journal of Philosophy of Education, 42: 575–590.

Taxerr, J., & Frenzel, A.C. (2015). Facets of teachers' emotional lives: A quantitative investigation of teachers' genuine, faked, and hidden emotions. Teaching and Teacher Education, 49: 78-88.

Velea, S., & Farca, S. (2013). Teacher's responsibility in moral and affective education of children. Procedia - Social and Behavioral Sciences, 76: 863 – 867

Weare, K. (2004). Developing the Emotionally Literate School. London: Paul Chapman.

Weare, K. (2010). Mental health and social and emotional learning: Evidence, principles, tensions, balances. Advances in School Mental Health Promotion, 3: 5–17.

Wong P. H., Hon-Law, S. Y. A. & Yip, S. C. (2005). Affective Education: The Value Development of Hong Kong Student-teachers. Paper presented in Redesigning Pedagogy International Conference: Research, Policy, Practice, Singapore, May 30 to June 1, 2005.

Zigler, R. L. (2001). John Dewey, Eros, Ideals, and Collateral Learning towards a Descriptive Model of Exemplary Teacher. Philosophy of Education Society. From <http://www.ed.uiuc.edu/EPS/PES-yearbook/2001/zigler%2001.pdf> (Retrieved on 4 April 2014).

## Öğretmen Yetiştirme Programlarının Öğretmen Adaylarının Duyuşsal Özelliklerine Etkileri Üzerine Eğitimcilerin Görüşleri

**Atıf:**

### Özet

*Problem Durumu*: Eski moda eğitim sistemleri genellikle öğrencilerin duygularını dikkate almamakta ve yalnızca bilişsel becerileri üzerine yoğunlaşmaktadır (Qi-rong 2010). Öğrenmeye katkıda bulunan temel beceriler olarak bilişsel ve duyuşsal beceriler, araştırma yollarını geliştirmeye, öğrencileri aktif hale getirmeye, kendi öğrenmeleri için sorumluluk duygusu geliştirmelerine ve sürekli öğrenmelerine yardımcı olur. Bilişsel ve duygusal öğrenme, bir bütünün birbirinden ayrılamayacak kadar önemli kısımlarıdır (LeBlanc ve Gallavan 2009, Alpan, Özer, Erdamar ve Subasi 2014, Kaklauskas ve diğerleri, 2015). Owen-Smith (2004), öğrenme süreçleri duyguları da içerdiğinde kalıcı öğrenmenin olasılığının artacağını iddia etmektedir.

Duyuşsal eğitim, değer geliştirmeyi desteklemek için gereklidir (Wong ve ark., 2005). Öğretmenlerin değerleri neyi nasıl öğrettikleri, öğrencileri geleceğe nasıl hazırlayacakları ve farklı öğrencilerle nasıl baş edebilecekleri üzerinde önemli bir etkiye sahiptir. Öğrenciler, öğretmenlerin davranışlarını ve öğretmenlerin sahip oldukları değerleri otomatik olarak öğrenirler (Zigler 2001). Öğretmenlerin manevi ve ahlaki gelişmeleri, nasıl öğrettiklerine doğrudan etki ettiği için, öğretmen adaylarının öğretmen eğitimi programlarında kazandıkları değerlerin ve bu değerlerin çalışma sırasında nasıl değiştiğinin incelemesi çok önemlidir (Wong ve diğ. (2005). Bu anlamda, etkili öğretmenler, hem kendilerinin öğrencilerin entelektüel (bilişsel) ve

ahlaki (duyuşsal) gelişmelerini sağlar (Zigler 2001). Dolayısıyla, öğretmen adaylarının manevi ve moral gelişimini arttıran duyuşsal eğitim, öğretmen eğitiminin ayrılmaz bir parçası olmalıdır (Wong ve ark., 2005). Öğretmen yetiştirme programları, öğretmenlerin duygusal eğitim için ihtiyaç duydukları bilgi, beceri ve donanımlara sahip olmalarını sağlamalıdır (LeBlanc ve Gallavan 2009).

*Araştırmanın Amacı*: Bu çalışma, öğretmen yetiştiren kurumlarda çalışan öğretim elemanlarının, öğretmen adaylarının duygusal gelişimine ilişkin görüşlerini incelemek amacıyla yapılmıştır. Bu araştırmada yer alan yaklaşım, etkili öğretmenlerin becerilerini, niteliklerini ve yeterliklerini tanımlamak değil, araştırmacı ve akademisyenlerin yetkin bir öğretmen hakkında ne düşündüklerine odaklanmaya çalışmaktır.

Alınyazında etkili öğretmenlerin çeşitli özelliklerini öğretmenler, müdürler ve öğrencilerin bakış açılarından ortaya koyan çalışmalar yer almaktadır. Bununla birlikte, öğretmen adaylarını eğiten öğretim elemanlarının görüşlerini vurgulayan çalışmalar çok az sayıdadır. Benzer şekilde, öğretmen adaylarının duyuşsal özellikleri ve öğretmenlik mesleğindeki başarısı üzerine sadece birkaç çalışma bulunmaktadır. Bu nedenle, bu çalışma, öğretmen yetiştirme sonrasında öğretmen adaylarının kazanacağı öğretmen özellikleri hakkında öğretim elemanlarının bakış açılarını ve bu özelliklerin duygusal alanla nasıl bir ilişkisi olduğunu ortaya koymayı amaçlamaktadır. Bu amaçla aşağıdaki araştırma soruları belirlenmiştir:

1. Öğretim elemanlarının bakış açılarına göre, öğretmen yetiştirme programlarını tamamlandıktan sonra öğretmen adayları hangi özellikleri kazanmaktadır?

2. Öğretmen adaylarının öğretmen yetiştirme programlarında edindikleri özellikler duygusal alanla ne derecede ilişkilidir?

*Araştırmanın Yöntemi:* Taramalar (survey), insanlardan ya da insanlar hakkında tutum ve davranışlarını tanımlamak, karşılaştırmak veya açıklamak amacıyla bilgi toplamak için kullanıldığından, bu çalışmada tarama modeli kullanılmıştır.

Bu çalışmanın katılımcıları, öğretmen eğiten kurumlarda görev yapan (eğitim fakültesi, fen ve bilim fakültesi fen ve sanat fakülteleri) 220 öğretim elemanıdır. Türkiye'deki tüm bölgesel birimleri temsil eden 21 farklı şehirde öğretmen yetiştirme kurumlarından rastgele seçilmişlerdir. Katılımcılar, 120 kadın (%54.5) ve 100 erkekten (%45.5) oluşmaktadır. Katılımcıların yaşları 21 ile 67 arasında değişmekte olup ortalama yaşları 42'dir. Katılımcıların yarısından fazlası yardımcı doçent (%50.5), % 10.5'i profesör, % 24.5'i doçent, ve geriye kalanlar öğretim görevlisidir (% 14.5). Katılımcıların geniş bir eğitsel deneyim yelpazesi vardır (6 ay- 34 yıl). Katılımcılar en az bir yıldır öğretim üyesi olarak çalışmaktadır, yüzde 25'i Eğitim Fakültesi'nde, geri kalanı ise Pedagojik Formasyon Sertifika Programlarında görev yapmaktadır.

*Veri toplama:* Araştırma sorularını cevaplandırmak için, araştırmacı tarafından Öğretmen Adaylarının Özellikleri ölçeği geliştirilmiş ve 2013-2014 akademik yılında uygulanmıştır. Ölçek tasarlanmadan önce etkili öğretmenin yetkinlikleri esas alınmış, sosyal ve duygusal özelliklere odaklanarak, bu yetkinlikler maddelere

dönüştürülmüştür. Daha sonra, alınyazın taraması ile etkili öğretmenlerin özellikleri, bilişsel ve duyuşsal özellikler olmak üzere iki kategoride toplanmıştır.

Ölçeğin kapsam geçerliliğini sağlamak için önce, ilgili alınyazının taranarak olası maddeler yazılarak ve on bir uzmanın (örneğin, öğretmen adayları, eğitim yönetimi öğretmenleri, ölçüm ve değerlendirme, psikolojik danışma ve rehberlik, müfredat ve öğretim) gözden geçirmesi sağlanmıştır. Bu uzmanların önerilerine dayanarak ölçek uygun olmayan maddelerden arıtıldı ve gerektiğinde dil açıklığa kavuşturuldu. Ölçek, 10 maddelik kişisel bilgi formu ile 25 maddelik, beşli Likert tipi bir ölçek ve bir açık uçlu sorudan oluşmaktadır. Güvenilirlik katsayısı .93 olarak hesaplandı.

220 kişilik katılımcıdan elde edilen veriler üzerinde anket formundaki Likert ölçeğindeki 25 soruya varimax rotasyonu ile açımlayıcı faktör analizi yapıldı. Kaiser-Meyer Olkin'in örnekleme yeterliliğinin ölçümü incelendiğinde, örneklemin faktörlenebilir olduğu ortaya çıkmıştır (KMO = .861). Madde 17, iki faktörde çok yakın faktör yükleri bulunduğu için analizden çıkarılmıştır. 0.30'dan daha düşük faktör yükleri hariç tutulduğunda, analiz basit bir yapıya sahip (faktör yükleri => .30) dört faktörlü bir hale getirildi. Döndürülen maddeler, kişisel yeterlilikler, kişilerarası yeterlilikler, mesleki beceriler ve benlik kavramı olmak üzere dört yorumlanabilir faktör ortaya çıkarıldı. Bu alt ölçeklerin güvenirlik katsayıları sırasıyla .97, .93, .93 ve .81 olarak hesaplanmıştır.

*Veri analizi:* Araştırma anketindeki verileri analiz etmek için betimsel istatistikler kullanılmıştır. İçerik analizi, katılımcıların bakış açılarını daha iyi anlamaya olanak sağladığı için (Berg 2001), açık uçlu sorularla toplanan nitel verileri analiz etmek için bu yöntem kullanılmıştır. Analiz sırasında, içerik öğelerinin bir kombinasyonu (kelimeler, cümleler, kavramlar ve paragraflar) kullanılmıştır. Bulguları rapor etmek için doğrudan alıntılar kullanılmıştır. Her cevap grubu "# 23" gibi bir sayı ile gösterilmiştir.

*Araştırmanın Bulguları*: Verilerin gözden geçirilmesi sırasında birkaç dikkat çekici bulgu ortaya çıkmıştır. Bunlar, araştırma soruları ile paralel olarak açıklanmıştır. Bu çalışmanın ilk araştırma sorusu, öğretim üyelerine göre öğretmen adaylarının öğretmenlik eğitimini aldıktan sonra hangi bilgi, beceri ve özellikleri kazanmaları beklenmektedir ortaya koymayı amaçlamaktadır. Bu soruya verilen cevapları analiz etmek için betimleyici istatistikler (frekans, yüzde, ortalama ve standart sapma gibi) hesaplanmıştır. Ortalama puanlar (5 puan üzerinden) 3.95 ile 3.16 arasında değişmektedir. Daha yüksek ortalama puanlar, öğretmenlerin duygusal becerilerin ne derece geliştiğine ilişkin olumlu bakış açısı göstermektedir.

Bu çalışmanın, öğretmen yetiştiren kurumlar için önerileri vardır: Öğretim elemanları, öğretmen adaylarının duygusal özelliklerini değerlendirmek için kendi eğitim programlarına vaka analizi, grup çalışması, tartışma, sunum ve probleme dayalı öğrenme gibi çeşitli etkinlikler ekleyebilirler. Çevrimiçi eğitimle ilgili araştırmasında Olatunji (2013), duyuşsal ve bilişsel alanlar arasındaki dengeyi sağlamak için problem temelli öğrenme, vaka analizlerinin grup analizi, perspektif paylaşımının ve yansıma eğitim programının bütünleştirmesi gerektiğini ileri sürmektedir. Bu bütünleşmeyi sağlamak, duygusal özelliklerin değerlendirilmesine olanak sağlayacaktır. Taxer ve

Frenzel (2015), öğretmen yetiştirme programlarının, duygu odaklı koşulları güçlü bir şekilde nasıl yöneteceğini öğretmen adaylarına öğretmek için duygu düzenleme eğitimini de içermesi gerektiğini iddia etmişlerdir.

Bununla birlikte, önceki çalışmaların belirttiği gibi, bilişsel ve duyuşsal becerilerin birbirinden ayrılması zor olduğundan, öğretmen adaylarının duyuşsal becerilerini değerlendirmek zordur (Pierre ve Oughton 2007). Bu çalışmada yer alan öğretim elemanları, duygusal özelliklerin ölçülmesindeki zorluğa değinmektedir. Diğer yandan, araştırmacılar, yalnızca bilişsel özelliklerin vurgulanmasının öğrencilerin duygusal gelişimini yıkıcı bir şekilde etkilediğini iddia etmektedir (Suissa 2008). Öğrencilerin bilişsel, duyuşsal ve sosyal öğrenme davranışları öğretmenlerin öğrencilerle olan öğretimsel, duygusal ve sosyal ilişkilerinden (Çiftçi, Hat ve Hamm 2011) etkilenebildiğinden öğretim mesleğinde başarılı olmak için yalnızca bilişsel becerileri değil aynı zamanda duygusal becerileri de gerekli kılmaktadır.

*Araştırmanın Sonuçları ve Önerileri:* Bu çalışmanın önerileri, öğretmen yetiştirme programlarının öğretmen adayları üzerinde etkilerini araştıran ve değerlendiren politikacılar ve eğitimciler tarafından düşünülmelidir. Öğretmen adaylarının ihtiyaçlarını daha iyi izleyebilmeleri ve bu ihtiyaçlara cevap verebilmeleri için eğitimcilerin programların süreç değerlendirmelerini yapmaları önemle tavsiye edilmektedir. Duyussal öğrenme çıktılarını değerlendirme yöntemleri hakkında daha fazla çalışma yapılabilir.

*Anahtar Kelimeler:* Öğretmen Yetiştirme. Öğrenme ve Duyuşsal Beceriler. Öğretmen Adayları. Öğretim Görevlisi Perspektifler. Sosyal beceriler.

## The Effects of Model Making on Design and Learning in Landscape Architecture Education

Tugba DUZENLI[1]   Serap YILMAZ[2]   Elif Merve ALPAK[3]

| A R T I C L E   I N F O | A B S T R A C T |
|---|---|
| | **Purpose**: One of the modeling methods used in the training of all design disciplines is physical model making. This study investigates the model-making technique and emphasizes the positive effects of model-making and its utility in the academic setting in order to understand its effects on design and learning. The "Equipment Design" course, taken in the 3rd academic semester at the Landscape Architecture Department at Karadeniz Technical University, was addressed as the application for this study. This course aims to convey to students the knowledge of how to utilize equipment in the design process in terms of ergonomics and aesthetics. The |

objective of the course is to design creative equipment that has appropriate dimensions and form that integrates with the selected activity. During the course, the students were assigned a sitting activity as a design problem and asked to design unique seating equipment and to express it through a model. **Research Methods:** In the first phase, the intention was to explore how students analyzed the seating activity through the model and how they interpreted the relationships among the dimensions, form and equipment in their designs, and thus equipment models were investigated accordingly. In the second phase, a survey study developed examines the effects of the model technique on the design process and student learning. Thus, the effects of the model-making technique on the level of teaching in the Equipment Design course were determined. **Findings:** Consequently, it was determined that students' notions of design develops through model making and that making a model of the seating equipment was found to be an instructive method for students of landscape architecture in terms of dimensions, form and material. **Implications for Research and Practice**: The "Equipment Design" course can contribute to the design processes of students especially in terms of creativity and realism. The model making approach facilitates students' understanding of dimension, form and the dimension-form relationship and material and the material-form relationship in the learning process, while contributing greatly to the development of the students' design processes.

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[1] Corresponding Author: Karadeniz Technical University, Faculty of Forestry, TURKEY, tugbaduzenli@gmail.com, **ORCID:** http://orcid.org/0000-0001-6957-3921.
[2] Karadeniz Technical University, Faculty of Forestry, Department of Landscape Architecture, TURKEY, serapyilmaz@ktu.edu.tr, **ORCID:** http://orcid.org/0000-0002-0088-3769.
[3] Karadeniz Technical University, Faculty of Forestry, Department of Landscape Architecture, TURKEY, elifmerveakyol@hotmail.com, **ORCID:** http://orcid.org/0000-0002-2306-4299.

## Introduction

Model making facilitates the design to be formed, making it clearer and more precise in comparison to other two-dimensional communication techniques. Models are forms of three-dimensional representations that create environments and allow us to perceive and interpret the design in greater depth than representation via drawing. Although design studies are finalized and solved on two-dimensional digital and physical platforms, the product might not be fully meaningful until it is physically produced in a three-dimensional platform (Donath & Regenbrecht, 1996; Dunn, 2010).

Visual models such as physical models help designers in their decision-making process, in addition to facilitating students in design and presentation of the current construct in terms educational functions. According to Golderman and Hoogen boom (2001), "visualization is the transformation of a spatial object into two- or three-dimensional models, organized by representations, simulations, and animations in a manner that could be perceived by the human mind, subsequent to design, implementation, and post-implementation". Visualization is important as an assistive tool in decision-making and for allowing the experience and comprehension of changes before they are actualized (Lange & Bishop, 2005). In the visualization of design, the representation techniques used are grouped into two, namely the conventional and the digital (Goldschmidt & Smolkoy, 2006; Jones, 1992; Shaw, 1994). The modeling technique is different realistically from the conventional techniques of representation (two-dimensional drawing, three-dimensional drawing, model technique). In the process of solving any design problem, primarily, abstract design ideas are first formed in the student's mind (Balta, 1999). However, the greatest challenge for freshmen in design education is to interpret and visualize the relationships within their design product during the process (Akbulut, 2010; Svoboda, 1992). The first step the student must take is to visualize the ideas in his/her mind by using tangible tools such as paper and the pencil or a model. In this respect, a model is highly effective and useful, as it reflects reality. When considered from this perspective, a model stands out not only as a design tool that is a physical representation establishing a relationship between the idea and reality, but also as a real object. Entire details of the design can be demonstrated directly through the model. Contrary to linear perspective drawings that offer a single angle view it is possible to move around the model, and the model can be moved to evaluate the design from many different angles (Spankle, 2009).

Consequently, the model emerges as a platform that provides ease of perception and facilitates a more distinct and effective delivery of the entirety of the features of design ideas (Dunn, 2010). Design educators must generate knowledge based on their distinctive methodological approaches and subscribe to their techniques by incorporating these methodical productions of knowledge into knowledge transfer. Therefore, this study aims to contribute with a distinct design technique focusing on the process of model-making techniques in landscape architecture design education (Durling, Cross, & Johnson, 1996; Galambos, Abelson, & Black, 1986; Oxman, 2004). The study intends to shed light on landscape architecture education by demonstrating the effects of this technique on learning and design processes.

*Design Education and Equipment Design*

Students are expected to produce convenient creative designs by integrating the design processes in the landscape architecture educational process since landscape architects need to develop multidimensional cognitive abilities. Equipment design education is a part of this process and aims to teach the means for designing unique equipment in accordance with the specific activity. Therefore, students need to cope with many different circumstances simultaneously while producing the options for equipment design. A few of these circumstances are aesthetic and functional considerations, namely, the dimensions of the equipment, its form, shape, the type of activity it is meant for, and the relationship of the equipment to the activity. Thus, at the Department of Landscape Architecture at Karadeniz Technical University (KTU), theoretical and applied design studio courses, where a master–apprentice relationship becomes the frontline, are considered extremely important for students to develop design and creativity skills. The Equipment Design course is one of these courses. In this study, the Equipment Design course, which aims to develop a creative understanding of equipment design, is examined within landscape architecture education.

Once the individual is considered as a system together with the equipment he or she utilizes in his/her inhabited environment, a harmony between the user and the equipment becomes necessary for this system to operate effectively (Yildirim & Hacibaloglu, 2000). Seating equipment has become a part of people's lives and is the most intensively used type of equipment. Therefore, it is crucial for students of landscape architecture to learn the design of the equipment most often used in open urban spaces. The surface essential to actualize the action of sitting could be a part of seating equipment with a certain height, as well as the ground plane. Designs that meet and solve the requirements of a sitting action are considered and formed according to the parameters of different environments and the purpose of the sitting action in the particular environment (Keegan, 1962). However, since human physiology cannot be altered, the sitting activity should ensure anthropometric measures and ergonomic conditions in any environment (Altiparmakogullari, 2009). Designers, therefore, first need to design ergonomic, unique, and creative seating units (Casakin, 2007; Cubukcu & Dundar, 2007). In this context, the models for seating units built in the Equipment Design course, which aims to investigate the design of ergonomic and original equipment, were evaluated within the education of the Department of Landscape Architecture.

## Method

*Research Design*

Scale models at 1/20th the size of seating units designed by students for sitting activities in the "Equipment Design" course, a second-year course at the Department of Landscape Architecture at KTU, were used as the material for this study. Landscape architects create habitable spaces for users by designing the environment to align with people's requirements and desires. In the discipline of landscape architecture, while designing these habitable spaces, first, ergonomic functional designs that meet the requirements of the users and then aesthetically unique designs with the highest level of creativity should come into prominence. Therefore, this course aims to convey to students an understanding of designing and developing creative equipment with appropriate dimensions, materials, and forms convenient for the activity. More explicitly, within the scope of this course, students are informed in regard to topics such as equipment elements, types, dimensions, and spatial construct. Subsequently, the equipment cases designed all over the world are examined in terms of space–equipment relationships.

*Research Sample*

During the later phases of the course, 30 students who attended the course were required to design a piece of equipment at 1/20th scale for a sitting activity. The aim was to ensure that students grasped the notion of designing seating fixtures in appropriate dimensions and unique forms. The educational approach within this course concentrates on the provision of formal and functional integrity. Depending on the selected sitting activity, the students are expected to interpret and design an original seating unit in the correct dimensions and form and to express it through a physical model.

In this course, which was organized directly through the utilization of a modeling technique, the main aim is to think, research, build, attempt, and design through a physical model. Students were free to choose their selection of material in order to let them decide on the appropriate material for the imagined form and to conduct trials in terms of finding the right technique related to the nature of the material by enhancing harmony between the material and the form.

Students would first examine examples of conceptual and tangible seating equipment in the literature in order to decide on the form to be used in the model. In this manner, they were to decide on the original character they would employ in their work. Subsequent to the literature survey conducted during this phase, the students begin to work on the model, through which they transferred their ideas of discovery, shaping, and developing into a three-dimensional representation. During the 6-week period, the models evolved and changed with respect to the criticisms of the course instructor. At the end of the process, an extraordinary, creative, and ergonomic product was achieved. The creative and unique 1/20th-scale seating units were submitted as the final models (Figure 1). In this phase, the students' final models were evaluated in terms of dimensions, form, and creativity.

*Figure 1.* Seating unit models built in the scope of the course

*Research Instruments and Procedures*

At the end of the course, a questionnaire was administered in order to determine the contributions of the model technique used during the course to the design process and learning. The questionnaire constitutes phase two of the study and consists of two parts. In the first part, the effects of the model technique on design were investigated, and in the second part, the effects on learning were investigated. The students were asked to respond to a questionnaire with a five-point scale and asked to rate items using 1 (very little), 2 (little), 3 (fair), 4 (good), or 5 (very good).

To determine the contributions of the model technique to the design processes, the following questions were asked: (1) How useful is model making scientifically? (2) How useful is model making in terms of functionality? (3) How useful is model making in terms of realism? (4) How useful is model making in terms of creativity?

To determine the contributions of the model-making technique to the learning process, the following questions were asked: (1) How much did you learn about the

dimensions of seating equipment while making a model? (2) How much did you learn about form, finding appropriate to the activity during the model-making process? (3) How much did you learn about the relationship between dimensions and form during the model-making process? (4) How much did you learn about finding the appropriate material for the form during the model-making process? (5) How much did you learn about the relationship between material and form during the model-making process? Finally, the students were asked whether they found the model-making process useful in expressing their thoughts about educational life.

*Data Analysis*

The data were coded, loaded, and analyzed using the SPSS 23.0 statistical package program. The study's mean scores and standard deviation values were calculated. During the research period, the statistical package program benefited from obtaining the research results. An independent t test was used to identify the differences between the effects of the concepts on the process, while an ANOVA test was used to determine whether model making contributed more to the learning process than to the design process. A correlation analysis was used to determine the relationship between model making and the learning process.

# Results

*Results of Phase One*

Dimension, form, and creativity solutions were analyzed for the models of seating units designed by the students within the scope of this course given in 2016. Students were required to design a piece of seating equipment at 1/20th scale. The models constructed by the students are evaluated in Table 1 in terms of dimensions, form, and creativity.

**Table 1**

*Evaluation of Models for Dimensions, Form and Creativity*

| Evaluation | | | | | |
|---|---|---|---|---|---|
| Dimension | Ergonomic | + | + | + | - |
| | No-ergonomic | - | - | - | + |
| Form | Organic | + | + | - | - |
| | Linear | - | - | + | + |
| Creativity | Ordinary | - | - | - | + |
| | Original | + | + | + | - |

*Findings of the Questionnaire*

*Findings Related to the Effect of Model Making on the Design Process*

"Creativity" and "Realism" attained the highest level of frequency values among the questions asked to determine the effects of model making on the design process (Figure 2). In other words, the model-making process was found to be highly beneficial in terms of developing creativity and expressing realism. "Formality" and "Functionality" were also found to be of assistance during the process.
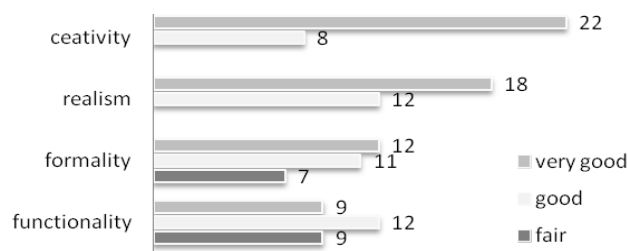


*Figure 2*. Frequency distribution graph of the effects of model making on the design process

Independent Samples t Test was performed using SPSS (v. 23.0) to determine whether the differences of the effects of the concepts on the process were statistically significant. The findings revealed that model making affected the design process in terms of creativity, realism, formality, and functionality (p <0.01) (Table 2). Therefore, it is possible to assert that model making is an important factor in improving the design process for students.

**Table 2**

*Evaluating the Differences Due to Model Making in the Design Process*

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
| | | | | | Lower | Upper |
|---|---|---|---|---|---|---|
| Creativity | 57,641 | 29 | ,000 | 4,733 | 4,57 | 4,90 |
| Realism | 50,565 | 29 | ,000 | 4,600 | 4,41 | 4,79 |
| Formality | 28,834 | 29 | ,000 | 4,167 | 3,87 | 4,46 |
| Functionality | 27,809 | 29 | ,000 | 4,000 | 3,71 | 4,29 |

*Findings Related to the Effect of Model Making on the Learning Process*

"Form" attained the highest level of frequency value for the questions asked to determine the effects of model making on the learning process (Figure 3). In other words, model making contributed significantly to the learning process in terms of

form. The students learned about the relationship between dimensions and form and material and dimensions in equipment design at a good level and the relationship between equipment and form and material and form at a very good level while making the models.
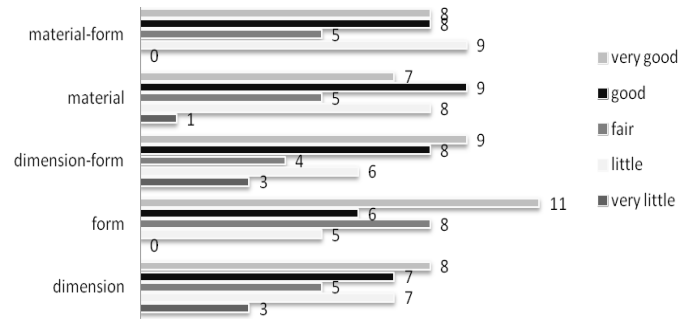


*Figure 3.* Frequency distribution graph of effects of model making on the learning process

Independent-Samples t test was performed using SPSS (v. 23.0) to determine whether the differences of the effects of the concepts on the process were statistically significant. The test results indicated that model making had a statistically significant effect on the learning process in terms of dimension, form, dimension–form relationship, material, and material–form relationship ($P < 0.01$) (Table 3). Therefore, it is possible to conclude that model making is an important factor in improving the learning processes of students.

**Table 3**

*Evaluating the Differences Due to Model Making in the Learning Process*

| | t | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Dimension | 13,298 | 29 | ,000 | 3,333 | 2,82 | 3,85 |
| Form | 18,175 | 29 | ,000 | 3,767 | 3,34 | 4,19 |
| Dimension-Form | 13,730 | 29 | ,000 | 3,467 | 2,95 | 3,98 |
| Material | 15,378 | 29 | ,000 | 3,433 | 2,98 | 3,89 |
| Material-Form | 16,025 | 29 | ,000 | 3,500 | 3,05 | 3,95 |

*Comparison of Findings on the Benefits of Model Making*

In this phase, the effects of model making on the design and learning process are compared. As an outcome of the ANOVA test, it was determined that model making contributed more to the learning process than to the design process (Table 4).

**Table 4**

*The Evaluation of the Effect of Model Making on the Processes ANOVA*

|  |  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Design Process | Between Groups | 5,619 | 4 | 1,405 | 8,073 | ,000 |
|  | Within Groups | 4,350 | 25 | ,174 |  |  |
|  | Total | 9,969 | 29 |  |  |  |
| Learning Process | Between Groups | 29,112 | 4 | 7,278 | 11,855 | ,000 |
|  | Within Groups | 15,348 | 25 | ,614 |  |  |
|  | Total | 44,460 | 29 |  |  |  |

Therefore, a correlation analysis was used to determine the relationship between model making and learning processes (dimension, form, dimension–form relationship, material, material–form relationship) and the benefits this process provided to students in regard to expressing their thoughts (Table 5). According to these results, the most effective factor in the learning process via model making was the material, and this was followed by the dimension–shape relationship. All factors were influential in the learning process. In addition, the ability to express ideas and material–form relationships, material and dimension were defined as the most interrelated concepts.

**Table 5**

*Concepts Related to the Learning Process*

|  |  |  | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|
| Learning Process | (1) | Dimension | - | ,937** | ,969** | ,958** | ,966** |
|  | (2) | Form |  | - | ,950** | ,920** | ,927** |
|  | (3) | Dimension-Form Relationship |  |  | - | ,957** | ,959** |
|  | (4) | Material |  |  |  | - | ,978** |
|  | (5) | Material-Form Relationship |  |  |  |  | - |
|  | Benefit in expressing ideas |  | ,790** | ,680** | ,738** | ,793** | ,814** |

**. The correlation is significant at the level of 0.01 (2-tailed).

## Discussion and Conclusion

As in all disciplines that include design and creativity processes, in academic landscape architecture programs, the approaches and methods that lead students to acquire the necessary skills and learn design are extremely important. In this study, which examined the relationships of model making to design and learning processes, the benefits of model making in equipment design were presented.

Within the scope of the Equipment Design course, on which this study was based, it was determined that model making contributes to the design processes of students, particularly in terms of "creativity" and "realism". Furthermore, the applied model-making method helped design students with aesthetic, functional, and formal perspectives and rendered the design process more comprehensible. The model-making approach facilitated students' understanding of dimension, form, dimension–form relationships, material, and material–form relationships in the learning process, while contributing greatly to the development of the students' design processes.

Based on these results, physical models play an important role as a tool in design and learning. The primary factors that strengthen this role are emphasized in the introductory section of this study as models being easy-to-comprehend and having realistic textures and physical existence. Despite the indisputable advantages of today's digital technologies and design world, such as the speed, variation, practical use, and sharing environment offered by 3D modeling software, physical models reveal a reality and form that can be observed from many different angles (Atalay et al., 2002; Büscher, Gill, Mogensen, & Shapiro, 2001). Therefore, they play very important roles as design, implementation, and representation tools (Farrelly, 2012).

In conclusion, the model-making process improves students' professional abilities and skills and facilitates learning alongside the discussion experience provided for the student or the designer on the level of reality, as well as their contribution to the design process. The basic knowledge and skills that determine the limits of the conceptualization and visualization of a student or designer are the attributes that make him/her a designer. Model making, which develops this knowledge and these skills, is an important design and learning method. The modeling technique creates a multi-disciplinary and contemporary design and production platform. In addition, it is possible to draw the conclusion that model making and utilization could be used as a productive design, creation, and delivery method for numerous other disciplines and courses.

# References

Akbulut, D. (2010). The effects of different student backgrounds in basic design education. *Procedia Social and Behavioural Sciences,* 5331–5338.

Altiparmakogullari, Y. (2009). *Oturma ogesi tasariminda basinc diyagrami modelinin kullanilmasiyla oturma profilinin tasarim kriterlerinin ortaya konmasi* [Design criterias of seating profile by using pressure diagrame model for designing seating units]. Yuksek Lisans Tezi, Mimar Sinan Guzel Sanatlar Universitesi, Fen Bilimleri Enstitusu, Istanbul.

Atalay, O. F., Onder, A., Sargin, G. A., Uluoglu, B., Kolatan, S., & Baykan, C. (2002). *Mimarlik ve sanallik.* Boyut Yayincilik, Istanbul, Turkiye.

Balta, M. (1999). *Mimari tasarim surecinde bilgisayar destegi* [Computational support during the architectural design process]. Yuksek lisans tezi, Yildiz Teknik Universitesi, Fen Bilimleri Enstitusu, Istanbul.

Büscher M., Gill S., Mogensen P., & Shapiro D. (2001). Landscapes of practice: Bricolage as a method for situated design, computer supported cooperative work. *The Journal of Collaborative Computing*, 10, 1-28.

Casakin H. P. (2007). Factors of metaphors in design problem-solving: Implications for design creativity. *International Journal of Design*, 1, 21-33

Cubukcu, E., & Dundar S. G. (2007). Can creativity be taught? An empirical study on benefits of visual analogy in basic design education. *ITU A|Z,* 4:2, 67-80.

Donath, D., & Regenbrecht, H. (1996) Using virtual reality aided design techniques for three dimensional architectural sketching. *ACADIA, Tucson,* 201-212.

Dunn, N. (2010). *Architectural model making.* London: Laurance King Publishing.

Durling, D., Cross, N., & Johnson, J. (1996) Personality and learning preferences of students in design and design related disciplines. *IDATER 1996 Conference, Loughborough: Loughborough University.* https://dspace.lboro.ac.uk/2134/1477

Farrelly, L. (2007). *The Fundamentals of architecture.* AVA Publishing.

Galambos, J.A., Abelson, R.P., & Black, J.B. (1986). *Knowledge structures, laurence erlbaum.* Hillsdale, NY.

Goldermans, S., & Hoogenboom, M. (2001). GIS Visualization the killer application? *Geoinformatics,* 12(2), 112-115.

Goldschmidt G., & Smolkov M. (2006). Variances in the impact of visual stimuli on design problem-solving performance. *Design Studies,* 27, 549-569.

Jones, J.C. (1992). *Design methods.* (2nd ed.). New York: Van Nostrand Reinhold.

Keegan, J. J. (1962). Evaluation and improvement of seats. *Industry Med. Surg.* 31, 137-148.

Lange, E., & Bishop, I. (2005). *Visualization in landscape and environmental planning: Technology and applications.* London; New York: Taylor & Francis, 296 p. - ISBN 0-415-30510-1.

Oxman, R. (2004). Think-maps: teaching design thinking in design education. *Design Studies*, 25(1), 63-91.

Shaw, M. (1995) .Comparing architectural design styles. *IEEE Software,*12:6, 27-41.

Spankle, R. (2009). *Drawing Out the Interior*. Lausanne; AVA Academia.

Svoboda, J. (1992). *The secret of theatrical space*. *TD&T* (28) 5: 14,19.

VanGundy, A. B. (1982). *Training your creative mind.* Prentice-Hall, Inc. Eaglewood Cliffs, NJ.

Yildirim, K., & Hacibaloglu M. (2000). *Konut mutfaklari ile ergonomik bir araştırma* [An ergonomic investigation on house kitchens]. *G.U, Fen Bilimleri Enstitusu Dergisi,* 13, 549-567.

## Peyzaj Mimarlığı Eğitiminde Maket Yapımının Tasarım ve Öğrenmeye Etkileri

**Atıf:**

## Özet

*Problem Durumu:* Peyzaj mimarlığı, mimarlık, iç mimarlık vb. tasarım disiplinlerinin eğitiminde kullanılan modelleme metotlarından biri maket yapımıdır. Öğrencilerin hayal ettikleri ve tasarladıkları ürünlerin gerçeğe uygun olup olamadığını görebilmeleri için maket yapımı önemli bir araçtır. Öğrencinin yapması gereken ilk adım, zihninde oluşan fikirleri; kağıt, kalem veya maket gibi somut araçlar kullanarak görselleştirmektir. Gerçeği yansıtması açısından maket bu açıdan oldukça etkili ve faydalıdır. Bu açıdan bakıldığında maket; zihindeki soyut düşünce ile gerçek arasındaki ilişkiyi kuran bir anlatım tekniğidir ve gerçek somut bir ürün olarak ortaya çıkar. Maket aracılığıyla tasarımda anlatılmak istenen tüm detaylar somut ve gerçekçi olarak ifade edilebilir. Perspektif çizimler tek ya da birkaç bakış açısı sunarken, makete her açıdan bakılabilir, etrafında hareket edilerek her açısı değerlendirilebilir. Bu nedenle maket anlatım tekniğinin; tasarım ve öğrenme üzerindeki etkisini anlayabilmek için bu çalışmada maket olgusu araştırılarak, maket yapımı ve kullanımının öğrenime pozitif etkilerine vurgu yapılmıştır.

*Araştırmanın Amacı:* Günümüzde oturma donatıları insanların yaşamlarının bir parçası haline gelmiş, en yoğun kullanılan donatı türüdür. Bu nedenle peyzaj mimarlığı öğrencileri için kentsel açık mekânlarda da en çok kullanılan donatı yani oturma birimi tasarım sürecini öğrenmek önemlidir. Oturma etkinliğinin gerçekleşeceği yüzey farklılaşsa da mutlaka uygun antropometrik ölçülere ve ergonomik koşullara sahip olmalıdır.

Tasarımcıya düşen ilk olarak ergonomik, ikinci olarak da özgün, yaratıcı oturma birimleri tasarlamaktır. Peyzaj mimarları; insanların ihtiyaç ve istekleri doğrultusunda çevrenin tasarlanmasıyla kullanıcılara yaşanabilir mekânlar yaratır. Peyzaj mimarlığı disiplininde bu mekânları tasarlarken öncelikle kullanıcı ihtiyaçlarını karşılayan, ergonomik işlevsel tasarımlar sonra da yaratıcılığı üst düzeyde estetik-özgün tasarımlar ön plana çıkmalıdır. Bu nedenle bu ders, öğrencilere uygun etkinlik için uygun ölçü, malzeme, biçime sahip yaratıcı donatı tasarımı geliştirme anlayışını kazandırmayı amaçlar. Bu çalışmanın uygulama kısmında; Karadeniz Teknik Üniversitesi Peyzaj Mimarlığı Bölümü eğitiminde 3. Yarıyılda verilen "Donatı Tasarımı" dersi ele alınmıştır. Dersi alan 30 öğrenciden oturma etkinliği için maket üzerinde 1/20 ölçeğinde donatı tasarlamaları istenir. Amaç oturma donatısını uygun ölçü ve özgün biçimde nasıl tasarlanabileceğinin öğrenciye kavratılmasıdır. Bu ders öğrencilere; ergonomik ve estetik açıdan donatıların tasarım sürecinde nasıl kullanılacağını öğretmeyi amaçlayan seçmeli bir derstir. Seçilen etkinlik ile bütünleşen, uygun ölçü ve biçimde yaratıcı donatılar tasarlanması dersin hedefini oluşturur. Ders kapsamında öğrencilere oturma etkinliği verilmiş ve özgün bir oturma donatısı tasarlamaları bunu da maketle ifade etmeleri istenmiştir.

*Araştırmanın Yöntemi*: Bu çalışmada materyal olarak, KTÜ Peyzaj Mimarlığı Bölümü 2.sınıf derslerinden "Donatı Tasarımı" dersinde öğrencilerin oturma etkinliği için tasarladığı 1/20 ölçekli oturma birimi maketleri kullanılmıştır. Bu dersin kapsamındaki eğitim yaklaşımı, biçimsel ve işlevsel bütünlüğün sağlanması üzerine odaklanır. Öğrencilerden seçilen oturma etkinliğine bağlı olarak yorumlama yapıp doğru ölçü ve biçimde özgün oturma birimi tasarlamaları ve bunu maketle ifade etmeleri beklenir. İlk aşamada; ders kapsamında öğrencilerin oturma etkinliğini maket üzerinde nasıl analiz ettikleri, tasarımlarında ölçü, biçim ve donatı ilişkisini nasıl yorumladıkları açıklanmaya çalışılmış, donatı maketleri bu amaçla incelenmiştir. İkinci aşamada ise anket çalışması yapılmış; maket tekniğinin öğrencilerin tasarım sürecine ve öğrenmelerine etkileri sorgulanmıştır. Anket iki kısımdan oluşmuştur; ilk kısımda maket yapımının tasarım sürecine yönelik, ikinci kısımda ise öğrenmelerine yönelik etkileri sorgulanmıştır. Ankette 5' li skala verilerek puanlama yapmaları istenmiştir, Maket yapımının tasarım süreçlerine katkılarının neler olduğu belirlemeye yönelik olarak; maket yapımı biçimsel açıdan ne kadar faydalıdır, (maket yapımı) işlevsel açıdan ne kadar faydalıdır, (maket yapımı) gerçekçilik açısından ne kadar faydalıdır, (maket yapımı) yaratıcılık açısından ne kadar faydalıdır soruları sorulmuştur. Böylece donatı tasarımı dersinde maket tekniğinin öğretim düzeyi belirlenmeye çalışılmıştır.

*Araştırmanın Bulguları:* Maket yapımı tasarım sürecine; yaratıcılığı geliştirmesi ve gerçekçiliği ifade etmesi açısından çok iyi derecede fayda sağlamıştır. "Biçimsellik" ve

"işlevsellik" açısından da sürece iyi derecede yardımcı olmuştur. Öğrenciler maket yaparken; donatının biçime, malzeme-biçim ilişkisini çok iyi derecede, donatı tasarımında ölçü-biçim ilişkisini, malzeme ve ölçüyü de iyi derecede öğrenmişlerdir.

*Araştırmanın Sonuçları ve Öneriler:* "Donatı tasarımı" dersi kapsamında; maket yapmanın özellikle "yaratıcılık" ve "gerçekçilik" açısından öğrencilerin tasarım süreçlerine katkı sağladığı belirlenmiştir. Ayrıca uygulanan maket yöntemi; tasarım öğrencilerine estetik, işlevsel ve biçimsel açıdan yardımcı olmuş, donatı tasarımı sürecini daha anlaşılabilir hale getirmiştir. Maket yapma yaklaşımı, öğrencilerin tasarım süreçlerinin gelişimine önemli katkı sağlarken aynı zamanda öğrenme süreçlerine de ölçü, biçim, ölçü-biçim ilişkisi, malzeme, malzeme-biçim ilişkisini anlamaları açısından da çok yardımcı olmuştur.  Ayrıca bu çalışmaya bağlı olarak, maket yapımı ve kullanımının, potansiyel başka birçok disiplin ve ders için de tasarlamaya yardımcı, seçenek üretme için geçerli bir anlatım tekniği olarak kullanılabileceği sonucuna varılabilir.

Sonuçta öğrencilerin maket yaparken tasarım anlayışlarının geliştiği ve oturma birimi maketi yapımının ölçü, biçim, malzeme açısından peyzaj mimarlığı öğrencileri için öğretici bir yöntem olduğu belirlenmiştir.

*Anahtar Sözcükler:* Yaratıcılık-gerçeklik, eğitim modeli, donatı tasarımı, öğrenme.

# Submission Checklist

## *Makale Sunumu Kontrol Çizelgesi*

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| 16 | ☒ | *Following the Turkish structured abstract, four to six keywords are included.* Uzun Türkçe özetten sonra 4-6 anahtar sözcüğe yer verilmelidir. |
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| | | As Anderson and Bjorn (2003) illustrated in their recent study<br>As recently as 2003, a prominent study (Anderson & Bjorn) illustrated<br>When a study has 3, 4, or 5 authors, include the names of all the authors the first time the work is cited:<br>(Anderson, Myers, Wilkes, & Matthews, 2003)<br>For all subsequent citations of this work, use "et al.":<br>(Anderson et al., 2003)<br>When a work has 6 or more authors, use et al.: (Bell et al., 2003)<br>For unsigned works, include the title, enclosed in parentheses. Put quotation marks for short work titles, and italicize the titles of reports, books, and other significant works:<br>("Recent Developments," 2004)<br>(Dictionary of Tetrathalocigistic Diseases, 2004)<br>Metin içindeki atıfları üstte verilen örneklere uygundur. |
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