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# MINDFUL ATTENTION AWARENESS IN PRIMARY SCHOOL TEACHERS: HOW DOES CREATIVE AND REFLECTIVE THINKING OCCUR WITHOUT IT? A MIXED METHODS RESEARCH

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**Abstract**

This research, which aims to determine the regulatory role of mindfulness in the relationship between creative thinking and reflective thinking, is a mixed method research in which quantitative and qualitative research methods are used together. The research was designed in a mixed-method convergent parallel design. The quantitative part was conducted with a descriptive survey model and the qualitative part was conducted with a case study design. The quantitative sample of the research was selected by cluster and simple random sampling method from classroom teachers working in the central districts of Konya province. The qualitative sample was selected from teachers who had at least one study on creative, reflective thinking, and mindfulness; had completed postgraduate education, and had ten years or more of professional seniority with the criterion sampling method from the teachers in the quantitative sample. In the quantitative part of the study, "creative thinking, reflective thinking, and mindfulness" measurement tools were used after obtaining the necessary permissions. Confirmatory factor analysis and reliability analysis were performed separately for these measurement tools. In the qualitative part of the study, interviews were conducted with a semi-structured interview form. When the quantitative and qualitative findings of the study were evaluated together, it was concluded that mindfulness has a regulatory role in the relationship between creative thinking and reflective thinking.

**Keywords:** Creative thinking, mindfulness, mixed methods research, reflective thinking.

## INTRODUCTION

In today's world, twenty-first-century skills are at the forefront of educational policies that students need to acquire (Welker & Mohr, 2017). Learning is not the passive reception of external knowledge, but the learner's engagement with the world (Hein, 1991). From this point of view, since it is thought that twenty-first-century skills cannot be acquired with teaching approaches that are seen as passive receivers of information, the traditional and teacher-centered approach has been replaced by the constructivist learning approach (Arslan, 2007). In addition, as a solution to the necessity of raising individuals who can keep up with the century we are in, it has been emphasized that educational studies should be revised and curricula and learning environments should be organized according to these requirements (Beghetto & Kaufman, 2010; Demir, 2015). In addition, the United States National Research Council Report emphasized that training for teachers and training of educators should be done promptly without lagging behind the age (NRC, 2012). In this way, both teachers and students will be able to keep up with the knowledge and skills required by the age and will not lag behind the time innovatively and creatively. Individuals of the innovative information age will also be able to keep up with these innovations, think creatively and scientifically, and adapt these thoughts to daily life (Demir, 2015). Because creativity includes both scientific thinking and daily life (Farooq, 2008).

In addition, creative thinking and creativity stem from the individual's self-realization attempts (Woodman, 1981). Since the concept of creativity is a subject that concerns all societies, it has been examined by different disciplines in recent years (Seidel et al., 2010). In the studies, creativity has been grouped as "person, process, and product" (Isaksen et al., 1993; Mackinnon, 1978; Rhodes, 1961; Treffinger et al., 1988). However, Boden (1996) stated that the product dimension predominates on the basis that creativity is to produce new products. Therefore, in educational institutions, students should be exposed to the problem-solving process to develop their creativity and produce products (Fisher & Williams, 2013). Individuals with creative thinking are expected to have high levels of conscious awareness using consciousness and cognition. Therefore, we can say that there is a relationship between creative thinking and mindfulness. Because cognition and consciousness are inherent in human beings (Nicoll, 2012; Topçular, 2014; Weinstein, Brown & Ryan, 2009). The main purpose of education is to gain insight from the experiences of the individual, to reveal his/her creative power, and to strengthen his/her potential (Beghetto & Kaufman, 2010; Greason & Cashwell, 2009; Miller et al., 1995). Mindfulness is the state of being aware of what is happening around us and being open to experiences (McKee, Johnston, & Massimilian, 2006). The essence of mindfulness is observing, taking action without judgment, and defining (Hayes & Shenk, 2004). Mindfulness is also a personality trait and can be developed through education (Brown, Ryan, & Creswell, 2007). Past experiences and learning play an important role in the level of mindfulness (Kabat-Zinn, 2003). Thanks to the events experienced and the existing past cognitive schemas, the individual using reflective thinking can make his/her evaluation more conscious (Brown & Ryan, 2003). Reflection values the experiences in the learning process and encourages the individual to benefit from them (Loughran, 1996). Thanks to the critical perspective brought about by reflection, the learner exhibits a realistic approach to making thoughtful choices and taking responsibility for the choices they make. In addition, with reflective thinking, the methods, learning outcomes, and materials used in the educational process are also reviewed and questioned (Norton, 1992). Reflective thinking supports higher-order thinking skills by encouraging students to associate prior knowledge with new information, to think in abstract and conceptual terms, to apply specific strategies in new tasks, and to make sense of the thinking strategies employed (Fogarty, 1994). Activities that include reflective thinking increase student-teacher interaction and motivation, enabling students to reach goals through natural problem-solving and improving the quality of teaching (Güven & Özerbaş, 2018). On the other hand, it helps students to support metacognitive skills by enabling them to plan, monitor, and evaluate their learning processes with reflective questions created during teaching (Şahin, 2011). Reflective thinking is based on the idea of increasing the recall of experiences and developing a conscious awareness of actions (Larsen, London & Emke, 2016). In this respect, we can say that the relationship between creative thinking and reflective thinking is realized with the regulation of mindfulness (Aşkın Tekkol & Bozdemir, 2018; Baysal & Demirbaş, 2012; Çelik & Dikmenli, 2021; Dover & Dierk, 2009; Erol et al., 2019). Students need to stop and think during the learning process, be aware of what they are doing, question why and how they do the activities they do, hold a mirror to the process they spend, develop and change their learning skills, and develop learning strategies (Ersözlü & Arslan, 2009). This will provide an important gain not only for shaping learning strategies but also as a reflective habit that can affect problem-solving skills in the steps of generating alternative solutions to the problem in problem situations, implementing and evaluating the result (Kızılkaya & Aşkar, 2009). For the reasons mentioned above, this study aims to examine the relationship between teachers' creative thinking and reflective thinking and the regulatory role of mindfulness in this relationship with both quantitative and qualitative methods. The rationale of the research shows that studies on creative thinking, reflective thinking, and mindfulness variables are largely concentrated in fields such as business, economics, psychology and health (Brown et al, 2007; Brown & Ryan, 2003; Greason & Cashwell, 2009; Hayes & Shenk, 2004; Isaksen et al., 1993; Kabat-Zinn, 2003; Larsen et al., 2016; Mckee et al., 2006; Miller et al., 1995; Rhodes, 1961; Seidel et al., 2010; Şahin, 2011; Weinstein et al., 2009; Weinstein et al., 2009; Woodman & Mohr, 2017). Research on teachers working in educational institutions is quite limited (Aşkın Tekkol & Bozdemir, 2018; Baysal & Demirbaş, 2012; Çelik & Dikmenli, 2021; Demir, 2015; Ersözlü & Arslan, 2009; Erol et al., 2019; Mackinnon, 1978). This

situation reveals that the level of mindfulness in the relationship between creative and reflective thinking in educational institutions has not been sufficiently investigated. This study will fill an important gap in the field by examining the regulatory role of mindfulness in the relationship between creative thinking and reflective thinking of teachers working in educational institutions. In the existing literature, most of the studies on creative thinking, reflective thinking, and mindfulness are focused on fields such as business, economics, psychology, and health, while studies on teachers are quite limited. This situation creates a scientific gap in the field of education, especially in how teachers interact with these variables. Therefore, this study aims to fill this scientific gap by providing new information to guide educational programs in developing teachers' creative and reflective thinking capacities and increasing their mindfulness levels. It will also make important contributions to reshaping teacher training processes in education, updating courses and curricula, and increasing the inclusion of mindfulness among high-level skills in education. In this way, it is predicted that it will have positive effects on the professional development of teachers and indirectly on student achievement in the field of education in the long term. From this point of view, the main purpose of this study is to investigate the regulatory role of mindfulness in the relationship between teachers' creative thinking and reflective thinking both quantitatively and qualitatively with mixed methods. This purpose also constitutes the rationale of the study. Because, when the relevant literature is reviewed, it is seen that most of the studies on creative thinking, reflective thinking, and mindfulness variables are conducted in the fields of business, economics, psychology, and health (Brown et al., 2007; Larsen et al., 2016; Woodman & Mohr, 2017), while studies on teachers working in educational institutions (Aşkın Tekkol & Bozdemir, 2018; Çelik & Dikmenli, 2021; Mackinnon, 1978) are rare. This situation creates a scientific gap in the field of education, especially in how teachers interact with these variables. Therefore, this study aims to fill this scientific gap by providing new information to guide educational programs in developing teachers' creative and reflective thinking capacities and increasing their mindfulness levels. It will also make important contributions to reshaping teacher training processes in education, updating courses and curricula, and increasing the inclusion of mindfulness among high-level skills in education. In this way, it is predicted that it will have positive effects on the professional development of teachers and indirectly on student achievement in the field of education in the long term.

**Problem Statement**

What are the results of comparing quantitative and qualitative data collected through a mixed convergent parallel design regarding the regulatory role of mindfulness in the relationship between creative thinking and reflective thinking?

**Sub-Problems for the Quantitative Section**

1. What are the distribution levels of creative thinking, reflective thinking, and mindfulness?

2. Does mindfulness play a regulatory role in the influence of creative thinking on reflective thinking?

**Sub-Problems for the Qualitative Section**

1. How are creative thinking, reflective thinking, and mindfulness defined when evaluated from a teaching perspective?

2. From a teaching perspective, does mindfulness play a regulatory role between creative thinking and reflective thinking?

## METHOD

**Research Design**

This study is a mixed-method research that aims to determine the regulatory role of mindfulness in the relationship between creative thinking and reflective thinking. The research was conducted using a combination of quantitative and qualitative research methods (Fetters, 2020). The quantitative process was conducted using a descriptive survey model. This model aims to describe the current situation (Creswell & Guetterman, 2019). The qualitative process was designed according to the nested

single-case design. This design is suitable for providing in-depth understanding and detailed information (Yin, 2018). The research was conducted with a mixed convergent parallel design (Mertens, 2023). This design means that quantitative and qualitative data are collected simultaneously and the findings from both types of data are compared [$MMR_{(f)}$=quantitative+qualitative]. The data were used to measure the relationship between reflective thinking, creative thinking, and mindfulness, and also included teachers' views on this topic. Mixed methods research offers an effective way of combining the advantages of different research approaches to answer research questions in an in-depth and comprehensive way.

**Sampling**

The study was conducted on teachers working in the central districts of Konya province using quantitative and qualitative samples. To determine the sample of the quantitative research, α=0.05 table was taken as a basis and it was aimed to select a sample of at least 377± people from the estimated study population of >10000 people (Zou & Xu, 2023). Cluster sampling and simple random sampling methods were used in the sampling process (Blair et al., 2023); first, classroom teachers were divided into groups and then classroom teachers were randomly selected from each group. The "criterion sampling" method was preferred to form the sample of the qualitative research (Okoko et al., 2023). With this method, six teachers selected from the main sample group from which quantitative data were collected were selected according to certain criteria. These criteria included having at least one study on creative and reflective thinking skills and mindfulness, having completed postgraduate education, and having a professional seniority of ten years or more. While these methods enabled the collection of quantitative data representing the general sample of the study, they also enabled the selection of classroom teachers with certain qualifications for in-depth analysis. Thus, the research aims to provide both general validity and in-depth understanding.

**Data Collection Instruments**

The Creative Thinking Disposition scale developed by Özgenel and Çetin (2017), the Reflective Thinking Disposition scale developed by Semerci (2007), and the Mindfulness scale developed by Brown and Ryan (2003) were used as quantitative data collection tools. Each of the scales used in the study was applied based on a single factor. Therefore, Harman's single-factor test was applied to each measurement tool. In Harman's single-factor test, it is concluded that there is a significant amount of common method variance if a factor emerges or a general factor explains the majority of the covariance between measurements (Harman, 1968). Accordingly, the Creative Thinking scale explains 39.724%, the Reflective Thinking scale explains 22.497% and the Mindfulness scale explains 37.611% of the total variance in one factor. Since the total variance explained by the scales in a single factor was less than 50%, it was seen that there was no common method variance in the measurement tools (Aguirre-Urreta & Hu, 2019). The scale items were administered in a five-point Likert style, with all items being positive and categorized as "1-Strongly Disagree" to "5-Strongly Agree". Confirmatory factor analysis and reliability analyses were conducted separately for the scales used in the study. These analyses show that the data collection tools of the study are reliable and valid, as well as the single-factor structures and methodological variances of the measurement tools are at an acceptable level. The results of the analysis are given in Table 1.

**Table 1.** Confirmatory factor analysis model fit criteria and model results.

| Scales | CMIN/SD | p | CFI | RMSEA | GFI | RMR |
|---|---|---|---|---|---|---|
| Creative Thinking | 3.083 | .001 | .975 | .074 | .965 | .021 |
| Reflective Thinking | 2.210 | .007 | .991 | .056 | .982 | .013 |
| Mindful Attention Awareness | 2.825 | .002 | .986 | .069 | .981 | .015 |

n=384

When the model fit criteria are analyzed in Table 1, it is observed that the model has smaller values than both independent models and saturated models. Therefore, we can say that the scale models included in the study are close to the real models. Since the t values exceeded 2.58 in the diagrams of the scales, the p values were significant at the .001 level. The error variances of the observed variables

were found to be low. In this direction, it can be said that the scale items are quite good. The reliability coefficient of the Creative Thinking scale was α=.917, the reliability coefficient of the Reflective Thinking scale was α=.862 and the reliability coefficient of the Mindfulness scale was α=.873. According to these results, it was concluded that the measurement tools used in the study were reliable (Yu, 2022). A semi-structured interview form was used as a qualitative data collection tool in the study. The purpose of the structured interview is to determine the parallelism and difference between the information given by the interviewees and to make comparisons within this framework. The names of the classroom teachers interviewed in the study were coded as "A-B-C-D-E-F-G" and their genders as "F-M".

**Data Analysis**

SPSS 25, AMOS 23, and PROCESS MACRO 4.1 programs were used for quantitative data analysis. Since the model is considered a complex model, certain assumptions need to be met. Therefore, calculations such as multiple normality, missing and extreme values, multicollinearity, and independence were made and it was seen that the measurement results met these assumptions. Descriptive statistical analysis results for the scales are given in Table 2.

**Table 2.** Descriptive statistical analysis results of scales.

| Scales | Minimum Score | Maximum Score | Skewness | Kurtosis |
|---|---|---|---|---|
| Creative Thinking | 1.80 | 5.00 | .055 | 2.223 |
| Reflective Thinking | 2.80 | 4.74 | -.397 | 1.208 |
| Mindful Attention Awareness | 2.40 | 5.00 | -.814 | .666 |

n=384

In this study, the kurtosis and skewness values were within the reference range of ±3, indicating that the data were normally distributed (Johnson & Christensen, 2020). The research examines how mindfulness modifies the effect of creative thinking on reflective thinking. This means that the moderating effect is used to understand how the effect of X on Y increases or decreases with W (Hayes, 2018). NVIVO 14 package program was used in the qualitative part of the study. Flexibility, creativity, and diversity were aimed at qualitative data analysis (Flick, 2022). Gunbayi (2023) classified qualitative data analysis as "theme analysis, descriptive analysis, content analysis, and analytical generalization". In this study, the data obtained through the semi-structured interview form were subjected to theme, descriptive, and content analyses, and were elaborated with analytical generalization in the discussion section. Fleiss Kappa analysis was performed for the reliability of the coding and the inter-coder reliability coefficient [κ=.815 t=17.100 p=.001] was found. This high value indicates that the inter-coder reliability is significantly high (Gwet, 2021).

## RESULTS

In the quantitative part of the study, findings on the distribution levels of creative thinking, reflective thinking, and mindfulness are presented in Table 3, and findings on the regulatory role of mindfulness in the effect of creative thinking on reflective thinking are presented in Table 4; In the qualitative part, the findings on how creative thinking, reflective thinking and mindfulness are defined when evaluated from the perspective of teaching are given in Table 5, and the findings on how mindfulness plays a regulatory role between creative thinking and reflective thinking when evaluated from the perspective of teaching are given in Table 6.

**Table 3.** Correlation and descriptive statistical analysis results of scales.

| Scales | Creative Thinking | Reflective Thinking | Mindful Attention Awareness | Mean | Std.Dev. |
|---|---|---|---|---|---|
| Creative Thinking | 1 | | | 4.03 | .438 |
| Reflective Thinking | .824** | 1 | | 4.05 | .304 |
| Mindful Attention Awareness | .196** | .420** | 1 | 4.28 | .447 |

*p<.05; **p<.01; ***p<.001 n=384

When the arithmetic mean and standard deviation values of the scales were examined, creative thinking was 4.03±.438 reflective thinking 4.05±.304 mindfulness 4.28±.447 were found. These values showed that teachers' creative thinking, reflective thinking, and mindfulness scores tended to increase. When the correlation analysis results were examined, there was a positive and statistically significant relationship between creative thinking and reflective thinking [r=.824**], a positive and statistically significant relationship between reflective thinking and mindfulness [r=.196**], and a positive and statistically significant relationship between mindfulness and reflective thinking [r=.420**]. The highest relationship was found between creative thinking and reflective thinking. The findings regarding the moderating role of mindfulness in the effect of creative thinking on reflective thinking are given in Table 4.

**Table 4.** Analysis results on the moderating role of mindfulness in the effect of creative thinking on reflective thinking.

| Variables | β | SE | t | p | Reflective Thinking (Y) | |
|---|---|---|---|---|---|---|
| | | | | | LLCI | ULCI |
| Creative Thinking (X) | .522 | .0182 | 28.722 | .001*** | .486 | .558 |
| Mindful Attention Awareness Level (W) | .168 | .0180 | 9.358 | .001*** | .132 | .203 |
| X*W (Interaction) | .129 | .0332 | 3.906 | .001*** | .064 | .195 |

**p<.05; **p<.01; ***p<.001 n=384. $F_{(3\text{-}380)}$=397.337 p=.001*** R=.870 $R^2$=.758 LLCI= Sub-Confidence Interval; ULCI= Upper Confidence Interval.*

When the analysis results regarding the moderating role of mindfulness in the effect of creative thinking on reflective thinking are analyzed in Table 4, creative thinking positively and significantly affects reflective thinking [β=.522, t=28.722 95% CI (.486, .558), p=.001] and mindfulness positively and significantly affects reflective thinking [β=.168, t=9.358 95% CI (.132, .203), p=.001]. On the other hand, when mindfulness and creative thinking were included in the model together as an interactional term, they positively and significantly affected reflective thinking [β=.129, t=3.906, 95% CI (.064, .195), p=.001]. In addition, the interactional term explained approximately 75.6% of the model as a moderating variable ($R^2$=.758). The significant effect of the interactional term on the model is evidence that mindfulness has a moderating role. To test whether the effects of creative thinking on reflective thinking are significant when mindfulness is low, medium, and high, a slope graph was drawn and given in Figure 1.

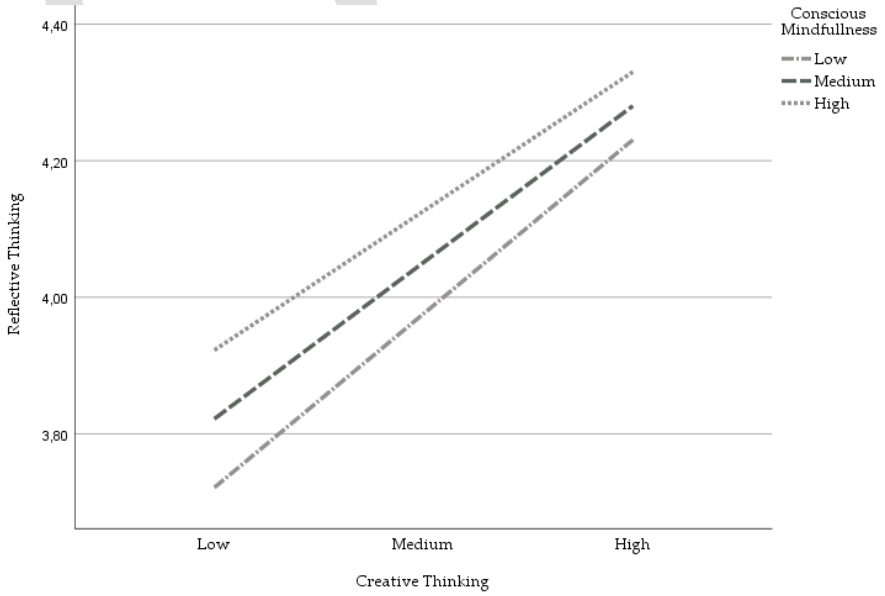


**Figure 1.** Graphical representation of regulatory variable effects (creative *thinking x*, reflective thinking *y*, and mindfulness *w*).

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When the moderating effects of mindfulness on the relationship between creative thinking and reflective thinking are examined, the slope graph shown in Figure 1 clearly shows how mindfulness levels affect this relationship. When mindfulness is low, the relationship between creative thinking and reflective thinking is significant [β=.464, t=18.183, p=.001*** 95% CI (.414, .514)]. This shows that there is a strong link between creative thinking and reflective thinking even at low levels of mindfulness. When mindfulness is at a moderate level, this relationship becomes stronger [β=.522, t=28.722, p=.001*** 95% CI (.486, .558)]. When mindfulness is high, the relationship between creative thinking and reflective thinking becomes the strongest [β=.580, t=27.351, p=.001*** 95% CI (.538, .622)]. In general, the beta coefficient tends to increase as the level of mindfulness increases, indicating that mindfulness strengthens the relationship between these two types of thinking. The confidence intervals (CI) of the findings do not include the zero value, which reveals that the results are statistically significant and reliable. Based on these findings, it can be concluded that mindfulness plays an important moderating role in the effect of creative thinking on reflective thinking. Table 5 presents the meta-themes, categories, and sub-themes of how teachers defined creative thinking, reflective thinking, and mindfulness from their perspectives.

**Table 5.** Themes, categories, and sub-themes related to creative thinking, reflective thinking, and mindfulness.

| Main Theme | Category | Sub-Theme | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|
| Creative Thinking | Innovation Search | Preferring New and Different Ones | ✓ | | ✓ | | ✓ | ✓ |
| | | Creating a New Idea and Product | | ✓ | | ✓ | ✓ | |
| | | Ability to combine ideas with a new purpose | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Curiosity | Don't Be Curious about Interesting Events, Situations, and Objects | ✓ | ✓ | ✓ | | | |
| | | Don't Be Curious About What's Going on Around | | ✓ | | ✓ | ✓ | |
| | Flexibility | Ability to look at events from different perspectives | ✓ | | ✓ | ✓ | | |
| | | Ability to Think Independently | ✓ | ✓ | ✓ | | | ✓ |
| Reflective Thinking | Mirroring | Ability to reflect on past learnings | | ✓ | | ✓ | ✓ | |
| | | Using New Materials and Activities | | ✓ | ✓ | ✓ | | |
| | | How to Skillfully Introduce and Explain a New Topic | ✓ | | ✓ | ✓ | | |
| | Understand | Ability to leave the subject incomplete and complete it | | ✓ | ✓ | | ✓ | |
| | | Understanding the Individual Needs of Students | | | ✓ | ✓ | | ✓ |
| Mindful Attention Awareness | Awareness | Focus on Everything That Happens | ✓ | ✓ | | ✓ | | |
| | | Be Aware of What You Are Doing | ✓ | | ✓ | | ✓ | |
| | | Paying Attention to What They Are Doing | ✓ | ✓ | ✓ | ✓ | | |
| | Becoming Conscious | Don't Do What You Do Consciously | | ✓ | | ✓ | | ✓ |
| | | Being Aware of the Past and the Future | ✓ | | ✓ | | ✓ | |

When the findings of the upper themes, categories and sub-themes related to creative thinking, reflective thinking and mindfulness are examined in Table 5, it is stated that the sub-themes of "preferring new and different ones, revealing a new idea and product, combining ideas with a new purpose" to the "Novelty Search" category, "curious about interesting events, situations and objects, The category of "Curiosity" was reached from the sub-themes of "wondering about what is happening in the environment", and the category of "flexibility" was reached from the sub-themes of "being able to look at things from different angles, to think independently". Regarding the upper theme of reflective thinking, the category of "Reflection" was reached from the sub-themes of "reflecting past learning, using new materials and activities, skillfully introducing and explaining a new subject", and the category of "Comprehension" was reached from the sub-themes of "leaving the subject incomplete and completing it, understanding the individual needs of the students". Regarding the upper theme of mindfulness, the category of "Being Aware" was reached from the sub-themes of "focusing on everything that occurs, being aware of what they are doing, paying attention to the work they do", and

the category of "Being Conscious" was reached from the sub-themes of "doing what you do consciously, being aware of the past and the future".

*Teachers' statements regarding the categories of creative thinking, novelty seeking, curiosity, and flexibility are as follows:*

["... When I think of creative thinking, I think of looking for innovation, I can call it creative thinking to prefer new and different ones." (A, M)].

["... I think creative thinking is curiosity, and through curiosity, we can develop creative thinking. I think being curious about interesting events, situations and objects around me is creative thinking." (B, F)].

["... Creative thinking means flexibility, not obeying authority, or being independent. You can only be creative by being able to think independently." (F, M)].

*Regarding the upper category of reflective thinking, reflection, and comprehension categories, teachers' statements are as follows:*

["... Reflective thinking is being able to reflect on past learning. It is to be able to reflect whatever object, event, information we have learned in the past to the new." (D, M)].

["... As a teacher, when I think of reflective thinking, I think of using new materials and activities. This is how I can reflect my old knowledge and experience." (C, M)].

["... Reflective thinking is being able to reflect on the topics I have learned in the past on new topics. In this way, I can skillfully explain and introduce a new topic." (A, M)].

*Teachers' statements regarding the upper category of mindfulness, being aware, and being conscious are as follows:*

["... Mindfulness means focusing on everything that is happening. In this way, awareness is realized by using consciousness." (A, M)].

["... Mindfulness is being aware of what you are doing. Mindfulness is the basis of mindfulness." (C, M)].

["... Teachers who are aware of the past and the future have high levels of mindfulness. I would describe the level of mindfulness as a combination of the past and the future." (E, M)].

When evaluated from the perspective of teachers, the findings and comments on the moderating role of mindfulness in the relationship between creative thinking and reflective thinking are presented under this heading. The parent themes, categories, and sub-themes created for the subject are given in Table 6.

**Table 6.** Theme, category, and sub-themes related to the moderating role of mindfulness in the relationship between creative thinking and reflective thinking.

| Main Theme | Category | Sub-Theme | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|
| The Moderating Role of Mindfulness in the Relationship Between Creative Thinking and Reflective Thinking | Regulating Mindfulness | Learning from Your Experiences | ✓ | | ✓ | ✓ | | ✓ |
| | | Self-Awareness | | ✓ | ✓ | ✓ | ✓ | |
| | | Facilitating a Sense of Acceptance | ✓ | | ✓ | | ✓ | ✓ |
| | | Be Aware of What You Are Doing | ✓ | ✓ | | ✓ | | |
| | | Focus on Work | ✓ | | ✓ | ✓ | ✓ | |
| | | Be Conscious of What You Do | | ✓ | | ✓ | | ✓ |
| | Regulating Awareness | Mindfulness in Seeking Innovations | ✓ | | ✓ | | ✓ | |
| | | Awareness of Curiosity | | ✓ | ✓ | ✓ | ✓ | |
| | | Awareness of Different Perspectives | ✓ | | | ✓ | ✓ | |
| | | Be Aware of Past Learning | | ✓ | ✓ | ✓ | | ✓ |
| | | Be aware of the level of reflection | ✓ | | ✓ | | ✓ | ✓ |

When the findings of the upper themes, categories, and sub-themes created regarding the regulatory role of mindfulness in the relationship between creative thinking and reflective thinking are examined in Table 6, it is stated that "learning from what you have experienced, being aware of oneself, facilitating the sense of acceptance, being aware of what you are doing, focusing on work, being aware of what you are doing" "Regulating Being Conscious" category, "awareness in searching for innovations, being aware of the sense of curiosity, being aware of different perspectives, being aware of past learning, being aware of the level of reflection, being aware of the level of reflection" from the sub-themes of "Regulating Awareness" category was reached.

*Regarding the category of regulating awareness between creative and reflective thinking, the teachers' statements are as follows:*

["... Creative thinking and reflective thinking are related concepts. The two complement each other. Between these two, mindfulness regulates being conscious by learning from what it has experienced, being aware of itself, and focusing on work." (C, M)].

["... Mindfulness regulates the relationship between creative thinking and reflective thinking through the teacher's self-awareness, facilitating the sense of acceptance, focusing on work, and being conscious." (E, M)].

["... By learning from what we do, being aware of what we do, it can strengthen the relationship between creative thinking and reflective thinking. This can only be regulated by being conscious." (F, M)].

*Regarding the category of regulating awareness between creative and reflective thinking, the teachers' statements are as follows:*

["... Mindfulness plays a regulating role in the relationship between creative thinking and reflective thinking. A sense of curiosity and awareness of past learnings can regulate this." (B, F)].

["... Mindfulness between creative thinking and reflective thinking can have a regulatory role by being aware of the sense of curiosity, being aware of the search for innovations, being aware of different perspectives, being aware of the level of reflection, in short, regulating awareness." (E, M)].

["... Mindfulness can have a moderating role between creative thinking and reflective thinking by regulating awareness. However, this can be like this. By being aware of past learning and being aware of the level of reflection, it can perform the regulatory mechanism. I would call it mindfulness regulation in the relationship between creative thinking and reflective thinking." (F, M)].

## DISCUSSION, CONCLUSION, and RECOMMENDATIONS

In the quantitative part of this research, which includes both quantitative and qualitative findings, it was concluded that teachers' creative thinking, reflective thinking, and mindfulness distribution levels tend to increase; there is a positive and statistically significant relationship between creative thinking, reflective thinking, and mindfulness; and mindfulness has a regulatory role in the effect of creative thinking on reflective thinking. The fact that teachers' creative thinking, reflective thinking, and mindfulness distribution levels tend to increase is similar to the studies of Duban & Yelken (2010) and Zümbül (2019). The fact that there is a positive and statistically significant relationship between creative thinking and reflective thinking is similar to the studies of Aşkın Tekkol & Bozdemir (2018), Altın & Saracaloğlu (2018), Çelik & Dikmenli (2021), Erol et al. (2019) and Yıldız & Yılmaz (2020); and the positive relationship between mindfulness and reflective thinking is similar to Baysal & Demirbaş (2012). The emergence of original and new things is different from what is known as creative thinking (Tay & Öcal, 2015). People's ability to reflect on what they have learned in new situations is also expressed as reflective thinking (Uygun & Çetin, 2014). From this point of view, it seems inevitable that both creative thinking and reflective thinking are interrelated concepts. We can say that the individual's choice to think in an open and receptive way without avoiding or judging the experience (Tatlıoğlu & Deniz, 2011) regulates the relationship between creative thinking and reflective thinking as mindfulness. Because it was found that high levels of mindfulness change the direction of the relationship between creative thinking and reflective thinking positively (Table 4). At the same time, when mindfulness was low, the relationship between creative thinking and reflective thinking was found to be both high and statistically significant (Figure 1). This can be explained by the fact that these concepts are related to each other. From this point of view, teachers' high level of mindfulness increases the level of reflective thinking as well as creative thinking. Therefore, we can say that mindfulness has a regulatory role in the relationship between creative thinking and reflective thinking.

In the qualitative part of the study, it was concluded that when evaluated from the perspective of teaching, creative thinking was defined as "seeking innovation" by preferring new and different ones, creating a new idea and product, combining ideas with a new purpose, "curiosity" with being curious about interesting events, situations, and objects, "curiosity" with being curious about what is happening in the environment, "flexibility" with being able to look at things from different angles and think independently. Reflective thinking was defined as reflecting on past learning, using new materials and activities, skillfully introducing and explaining a new topic, and "reflecting", leaving a topic incomplete and having it completed, understanding students' individual needs and

"understanding". They defined mindfulness as "being aware" by focusing on everything that happens, being aware of what they do and paying attention to what they do, being conscious of what they do, and being aware of the past and the future. On the other hand, in the relationship between creative thinking and reflective thinking, it was concluded that mindfulness has a regulatory role in the mechanisms of learning lessons from what they have experienced, being aware of themselves, facilitating the sense of acceptance, being aware of what they have done, focusing on work and being aware of what they have done, and "regulating mindfulness", awareness in seeking innovations, being aware of the sense of curiosity, being aware of different perspectives, being aware of past learning, being aware of the level of reflection and "regulating mindfulness". Edwards (2008) defined creative thinking skills as "focusing, searching for what is overlooked, focusing on the goal..." Guilford (1968) "flexibility, coping with complexity..." Torrance et al. (2008) classifies it as "being aware and using emotions, combining and synthesizing, looking from different perspectives, curiosity...". In the study, when teachers' definitions of creative thinking were analyzed, the categories of novelty seeking, curiosity, and flexibility were obtained. This result is similar to the results of Edwards (2008), Guliford (1968) and Torrance et al. In addition, Torrance (1972) characterizes individuals who are flexible, novelty-seeking, fluent, and original thinkers as creative. What is meant by novelty seeking is the effort to come up with a new idea and product. In the sense of curiosity, it is curiosity about what is happening in the environment. In the concept of flexibility, what is meant is the ability to look at events, objects, or situations from different perspectives and to think independently without being subjected to any authority and obstacles. This result is also similar to Guliford's (1968) "mind structure model". From this point of view, we can say that teachers being flexible, having a sense of curiosity, and seeking innovation are important components in terms of having creative thinking. Dewey (1933) classifies reflective thinking skills as "having an open mind, being willing and taking responsibility...". In his reflective thinking model, Farrah (2012) refers to reflective thinking in general with the concept of "reflection" as "before reflection, during reflection, and after reflection". In the study, when teachers' definitions of reflective thinking were analyzed, the categories of reflection and understanding were obtained. This result is similar to the results of Dewey (1993) and Farrah (2012). On the other hand, Taggart & Wilson (2005) see reflective thinking as the process of making a logical decision by generating ideas on an educational problem and evaluating and interpreting this decision. Therefore, teachers' past learning, developing the materials they used in their past learning and using them in new activities, skillfully introducing and explaining a new subject can be explained by the concept of reflection. According to Demir & Arslan (2021), teachers' reflective thinking positively affects both their professional attitudes and the teaching process. In addition, completing the subject by leaving it incomplete with comprehension category activities and conducting reflective thinking activities by understanding the needs of individual students show teachers' reflective thinking activities. Therefore, we can say that it is important for teachers to reflect on what they have learned and improve themselves in terms of comprehension activities in terms of reflective thinking. In the study, when teachers' definitions of mindfulness were examined, the categories of being aware and being conscious were obtained. This result is similar to the results of Brown & Ryan (2003), Germer (2004) and Lau et al. (2006). In the study, when teachers' definitions of mindfulness were analyzed, the categories of being aware and being mindful were obtained. According to Brown & Ryan (2003), mindfulness is the awareness and consciousness of the individual's inner world and stimuli such as the environment and others. Germer (2004) defines mindfulness as focusing on the present moment without focusing one's attention on the past or the future. From this point of view, teachers' focusing on everything at the moment, being aware of what they do, and paying attention to what they do were categorized as "being aware" in mindfulness, and acting consciously and being aware of the past and future were categorized as "being conscious" in mindfulness. This result is also similar to the literature of Lau et al. (2006) and Coffye & Hartman (2008). Because mindfulness is the state of creating awareness by participating in mindfulness meditation. In addition, in mindfulness, there is a state of being aware of all experiences and perceiving what happened as close to reality. Therefore, we can say that it is important for teachers to be aware and conscious in terms of mindfulness. Teachers state that mindfulness has a regulating role in the relationship between creative thinking and reflective thinking

with the categories of "regulating being conscious and regulating being aware". Torrance (1972) characterizes individuals who are flexible, novelty-seeking, fluent and original thinkers as creative thinkers. Dewey (1933), on the other hand, refers to individuals who are open-minded, willing and take responsibility as individuals with reflective thinking. As can be seen, both creative thinking and reflective thinking are related and interrelated concepts. These two related concepts indicate that only the concepts of "being conscious and being aware" regulate mindfulness. This situation also shows that the increase in teachers' mindfulness levels also increases the relationship between creative and reflective thinking. According to Coffye & Hartman (2008), mindfulness is defined as the state of creating awareness. The fact that teachers are conscious and aware shows that they play a regulatory role in the relationship between creative thinking and reflective thinking. In light of these results, the following suggestions were developed for the research and researchers. Limitations of the study are also given in detail below.

**Limitations of the Study and Recommendations**

The first limitation of this study was to explain to teachers how a variable plays a regulatory role. This situation was overcome with difficulty by associating with current examples. The second limitation was experienced in finding teachers with ten years or more seniority who had done postgraduate studies with the variables of creative thinking, reflective thinking, and mindfulness. Because, considering the difficulty of overcoming the first limitation of the research, working with a teacher who was not familiar with these concepts would mean that the research would not be finalized. The third and last limitation was the use of ready-made measurement tools due to the time problem. Consequently, the number of measurement tools created for these concepts is quite small and needs to be organized in terms of their application to teachers working in educational institutions. Although CFA analyses and reliability analyses were conducted, a measurement tool developed with the scale development sub-design of the mixed method research, exploratory sequential design, and trying to measure these variables would be more valid and more reliable for educational institutions. This situation also constitutes a scientific gap for researchers who will work with these variables in the future. In addition, time limitations, participant adequacy, and study design limitations may have been experienced. Since the research was conducted in a specific period, it may be affected by seasonal or temporary factors. This may affect the validity of the findings in general. There may be individual differences and experiences that affect teachers' levels of creative thinking, reflective thinking and mindfulness. This may make it difficult for the results of the study to provide a general measure. About the use of mixed methods, there may be methodological challenges and consistency issues in integrating quantitative and qualitative data. This may affect the accuracy and reliability of the results. Based on these limitations, the following recommendations are made.

**Recommendations for Practitioners**

In this study, it was determined that mindfulness has a regulatory role in the relationship between creative thinking and reflective thinking. In this respect, the concept of mindfulness should be given as a related concept in creative thinking and reflective thinking trainings and curricula to be given to teachers by the ministries of education.

**Recommendations for Researchers**

In this study, creative thinking, reflective thinking and mindfulness measurement tools were used readily due to the time problem. However, with the scale development sub-design of the mixed method exploratory sequential design, the development of more useful and advanced measurement tools for educational institutions is of urgent importance in terms of the relevant literature.

**Ethics and Conflict of Interest**

It was confirmed that this study's author has contributed sufficiently to the research. He also confirmed that it acted following ethical rules at all stages of the research as stated in the approval granted by the Ethics Committee of Çukurova University (Date:22.06.2023, number: E-95704281-604.02.02-731555). There is no conflict of interest between the authors.

**Contribution Rate of Authors**
All authors' contributions to the article are equal in every aspect. All authors have read and agreed to the published version of this work.

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## REFERENCES

Aguirre-Urreta, M. I., & Hu, J. (2019). Detecting common method bias: Performance of the Harman's single-factor test. *ACM SIGMIS database: The DATABASE for Advances in Information Systems, 50*(2), 45-70. http://dx.doi.org/10.1145/3330472.3330477

Altın, M., & Saracaloğlu, A. S. (2018). Yaratıcı, eleştirel ve yansıtıcı düşünme: Benzerlikler-farklılıklar [Creative, critical and reflective thinking: Similarities-differences]. *International Journal of Contemporary Educational Studies, 4*(1), 1-9.

Arslan, M. (2007). Eğitimde yapılandırmacı yaklaşımlar [Constructivist approaches in education]. *Ankara University Journal of Faculty of Educational Sciences (JFES), 40*(1), 41-61. http://dx.doi.org/10.1501/Egifak_0000000150

Aşkın Tekkol, İ., & Bozdemir, H. (2018). Öğretmen adaylarının yansıtıcı düşünme eğilimleri ile eleştirel düşünme becerilerinin incelenmesi [An investigation of reflective thinking tendencies and critical thinking skills of teacher candidates]. *Kastamonu Education Journal, 26*(6), 1897-1907. https://doi.org/10.24106/kefdergi.2211

Baysal, Z. N., & Demirbaş, B. (2012). A study of the relationship between the mindful attention awareness of candidate primary school teachers and their reflective thinking tendency. *Journal of Research in Education and Teaching, 1*(4), 12-20. http://www.jret.org/FileUpload/ks281142/File/02a._demirbas.pdf

Beghetto, R. A., & Kaufman, J. C. (2010) (Eds.). *Nurturing creativity in the classroom.* Cambridge University Press.

Blair, G., Coppock, A., & Humphreys, M. (2023). *Research design in the social sciences: declaration, diagnosis, and redesign*. Princeton University Press.

Boden, M. A. (1996). *Dimensions of creativity*. The MIT Press.

Brown, K. M., Ryan, R. M., & Creswell, C. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*(4), 211-237. https://doi.org/10.1080/10478400701598298

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822-848. https://psycnet.apa.org/doi/10.1037/0022-3514.84.4.822

Coffey, K. A., & Hartman, M. (2008). Mechanisms of action in the inverse relationship between mindfulness and psychological distress. *Complementary Health Practice Review, 13*(2), 79-91. https://doi.org/10.1177/1533210108316307

Collier, J. E. (2020). *Applied structural equation modeling using AMOS basic to advanced techniques*. Routledge.

Creswell, J. W., & Guetterman, T. C. (2019). *Educational research planning, conducting and evaluating quantitative and qualitative research*. Pearson.

Çelik, B. B., & Dikmenli, Y. (2021). Sınıf öğretmeni adaylarının yaratıcı ve yansıtıcı düşünme eğilimlerinin incelenmesi [Investigating creative and reflective thinking trends of class teacher candidates]. *Journal of Anatolian Cultural Research, 5*(1), 46-65.

Demir, S. (2015). Perception of scientific creativity and self-evaluation among science teacher candidates. *Journal of Education and Practice, 6*(18), 181-183. https://core.ac.uk/download/pdf/234637559.pdf

Demir, T., & Arslan, A. (2021). Öğretmenlerin yansıtıcı düşünme eğilimleri, demokratik davranışları ve 21. yüzyıl öğreten becerilerinin CHAID analizi yöntemi ile incelenmesi [Examining teachers' reflective thinking tendencies, democratic behaviors and 21st century teacher skills by CHAID analysis method]. *Karaelmas Journal of Educational Sciences, 9*(1), 184-203. https://dergipark.org.tr/tr/download/article-file/1779247

Dewey, J. (1998). *Experience and education.* Kappa Delta Pi.

Dover, P. A., & Dierk, U. (2009). The role of managers, entrepreneurs and leaders in sustaining the organization. *Creativity, Innovation and Management, 1*(2),12-34. https://www.fm-kp.si/zalozba/ISBN/978-961-266-047-5/abstracts/MIC4232.pdf

Duban, N., & Yelken, T. Y. (2010). Öğretmen adaylarının yansıtıcı düşünme eğilimleri ve yansıtıcı öğretmen özellikleriyle ilgili görüşleri [in Turkish]. *Journal of Çukurova University Social Sciences Institute, 19*(2), 343-360.

Edwards, C. H. (2008). *Classroom discipline and management.* John Wiley & Sons.

Erol, M., Erol, A., Çalışır, S., & Bozan, M. (2019). Öğretmenlerinin yansıtıcı düşünme eğilimleri ile yaratıcı düşünme düzeyleri arasındaki ilişkinin incelenmesi [Examination of the relationship between reflective thinking tendencies and creative thinking levels of teachers]. *Primary Education, 1*(2), 20-29.

Ersözlü, Z. N., & Arslan, M. (2009). The effect of developing reflective thinking on metacognitional awareness at primary education level in Turkey. *Reflective Practice, 10*(5), 683-695. http://dx.doi.org/10.1080/14623940903290752

Farooq, U. (2008). *Supporting creativity: Investigating the role of awareness in distributed collaboration.* The Pennsylvania State University.

Farrah, M. (2012). Reflective journal writing as an effective technique in the writing process. *An-Najah University Journal for Research-B (Humanities), 26*(4), 997-1025. http://dx.doi.org/10.35552/0247-026-004-008

Fetters, M. D. (2020*). The mixed methods research workbook activities for designing, implementing, and publishing projects.* SAGE.

Fisher, R., & Williams, M. (2013). *Unlocking literacy: A guide for teachers.* David Fulton Publishers.

Flick, U. (Ed.) (2022). *The SAGE handbook of qualitative research design*. SAGE.

Fogarty, R. (1994). *The mindful school: How to teach for metacognitive reflection.* Skylight Professional Development.

Germer, C. (2004). What is mindfulness. *Insight Journal, 22*(3), 24-29.

Greason, P. B., & Cashwell, C. S. (2009). Mindfulness and counseling self-efficacy: The mediating role of attention and empathy. *Counselor Education and Supervision, 49*(1), 2-19. https://doi.org/10.1002/j.1556-6978.2009.tb00083.x

Guilford, J. P. (1968). *Intelligence, creativity and their educational implications.* Robert R. Knapp Publisher.

Gunbayi, I. (2023). Data analysis in qualitative research. *Journal of Action Qualitative & Mixed Methods Research, 2*(2), 1-11. https://doi.org/10.5281/zenodo.7763207

Güven, S., & Özerbaş, M. A. (2018) (Eds.). *Öğretim ilke ve yöntemleri* [Teaching principles and methods]. Pegem Akademi.

Gwet, K. L. (2021). Large-sample variance of Fleiss generalized kappa. *Educational and Psychological Measurement, 81*(4), 781-790. https://doi.org/10.1177/0013164420973080

Harman, H. H. (1968). *Modern factor analysis.* University of Chicago Press.

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis*. Guilford Press.

Hayes, S. C., & Shenk, C. (2004). Operationalizing mindfulness without unnecessary attachments. *Clinical Psychology: Science and Practice, 11*(3), 249-254. http://dx.doi.org/10.1093/clipsy.bph079

Hein, G. E. (1991). Constructivist learning theory. *Paper presented at the CECA (International Committee of Museum Educators) Conference.* Jerusalem Israel, 15-22 October 1991, 1-10. https://www.scirp.org/reference/referencespapers?referenceid=3017051

Isaksen, S. G., Puccio, G. J., & Treffinger, D. J. (1993). An ecological approach to creativity research: Profiling for creative problem solving. *The Journal of Creative Behavior*. *27(*3), 149-170. http://dx.doi.org/10.1002/j.2162-6057.1993.tb00704.x

Johnson, R. B., & Christensen, L. (2020). *Educational research quantitative, qualitative, and mixed approaches*. SAGE.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: past, present, and future. *Clinical Psychology: Science and Practice,10*(2), 144-156. https://doi.org/10.1093/clipsy.bpg016

Kızılkaya, G., & Aşkar, P. (2009). Problem çözmeye yönelik yansıtıcı düşünme becerisi ölçeğinin geliştirilmesi [The development of a reflective thinking skill scale towards problem solving]. *Education and Science, 34*(154), 82-92.

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. The Guilford Press.

Larsen D., London D., & Emke A. (2016). Using reflection to influence practice: Student perceptions of daily reflection in clinical education. *Perspectives on Medical Education, 5*(5), 285-91. http://dx.doi.org/10.1007/s40037-016-0293-1

Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L., Shapiro, S., Carmody, J., Abbey, S., & Devins, G. (2006). The toronto mindfulness scale: development and validation. *Journal of Clinical Psychology, 62*(12), 1445-1467. https://doi.org/10.1002/jclp.20326

Loughran, J. J. (1996). *Developing reflective practice: learning about teaching and learning through modelling.* Falmer Press.

Mackinnon, D. W. (1978). In search of human effectiveness: Identitying and developing creativity buffalo, N.Y. The Creative Education Foundation. *Gifted Child Quarterly*, *22*(4), 449-453. https://doi.org/10.1177/001698627802200407

McKee, A., Johnston, F., & Massimilian, R. (2006). Mindfulness, hope and compassion: A leader's road map to renewal. *Ivey Business Journal*, *70*(5), 1-5.

Mertens, D. M. (2023). *Mixed methods research. Bloomsbury* Academic.

Miller, J. J., Fletcher, K., & Kabat-Zinn, J. (1995). Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. *General Hospital Psychiatry, 17*(3), 192-200. https://doi.org/10.1016/0163-8343(95)00025-M

Nicoll, M. (2012). *Gurdieff ve Ouspensky öğretisi üzerine psikolojik yorumlar* [in Turkish] (Volume III). Ruh ve Madde Publications.

Norton, W. (1992). Clarifying the discipline of human geography: An aid to effective teaching. *Journal of Geography*, *91*(6), 277-279. https://doi.org/10.1080/00221349208979110

NRC. (2012). *A Framework for K-12 science education: practices, crosscutting concepts, and core ideas.* The National Academic.

Okoko, J. M., Tunison, S., & Walker, K. D. (2023). *Varieties of qualitative research methods selected contextual perspectives*. Springer.

Özgenel, M., & Çetin, M. (2017). Marmara yaratıcı düşünme eğilimleri ölçeğinin geliştirilmesi: Geçerlik ve güvenirlik çalışması [Development of the Marmara creative thinking dispositions scale: Validity and reliability analysis]. *Marmara University Atatürk Education Faculty Journal of Educational Sciences*, *46*(46), 113-132. http://dx.doi.org/10.15285/maruaebd.335087

Rhodes, M. (1961). An analysis of creativity. *Phi Delta Kappan*, *42*(7), 305-310.

Seidel, S., Müller-Wienbergen, F., & Becker, J. (2010). The concept of creativity in the information systems discipline: Past, present, and prospects. *Communications of the Association for Information Systems*, *27*(1), 14. http://dx.doi.org/10.17705/1CAIS.02714

Semerci, Ç. (2007). Öğretmen ve öğretmen adayları için yansıtıcı düşünme eğilimi ölçeğinin geliştirilmesi. *Kuram ve Uygulamada Eğitim Bilimleri, 7*(3), 1351-1377.

Semerci, C. (2007). Öğretmen ve öğretmen adayları için yansıtıcı düşünme eğilimi ölçeğinin geliştirilmesi [Developing a reflective thinking tendency scale for teachers and student teachers]. *Educational Sciences in Theory and Practice, 7*(3), 1351-1377.

Şahin, A. (2011). Türkçe öğretmen adaylarının yansıtıcı düşünme eğilimlerinin çeşitli değişkenlere göre değerlendirilmesi [Evaluating pre-service Turkish teachers' reflective thinking tendencies according to various variables]. *Electronic Journal of Social Sciences*, *37*(10), 108-119.

Taggart, G. L., & Wilson, A. P. (2005). *Promoting reflective thinking in teachers*. Corwin Press.

Tatlılıoğlu, K., & Deniz M. E. (2011). Farklı öz-anlayış düzeylerine sahip üniversite öğrencilerinin karar vermede öz-saygı, karar verme stilleri ve kişilik özelliklerinin değerlendirilmesi [The evaluation of decision self esteem decision making styles and personality traits in university students with different self compassion levels]. *Bingöl University Journal of Social Sciences Institute*, *1*(2), 19-41.

Tay, B., & Öcal, A. (2015) (Eds.). *Sosyal bilgiler öğretimi* [Social studies teaching]. Pegem Akademi.

Topçular, S. (2014). Bibliyoterapi: İnsan ruhunun iyileştirildiği yer [in Turkish]. *Kırıntı National Journal of Science, Culture and Art*, *10*(92), 68-69.

Torrance, E. P. (1972). Can we teach to children think creatively? *The Journal of Creative Behavior*, *6*, 114-143. https://doi.org/10.1002/j.2162-6057.1972.tb00923.x

Torrance, E. P., Ball, O. E., & Safter, H. T. (2008). *Torrance tests of creative thinking streamlined scoring guide for figural forms A and B.* Scholastic Testing Service. https://www.ststesting.com/gift/TTCT_InterpMOD.2018.pdf

Treffinger, D. J., & Barton, B. L. (1988). Fostering independent learning. *Gifted Child Today Magazine*, *11*(1), 28-30. https://doi.org/10.1177/107621758801100108

Weinstein, N., Brown, K. W., & Ryan, R. M. (2009). A multi-method examination of the effects of mindfulness on stress attribution, coping, and emotional well-being. *Journal of Research in Personality, 43*(3), 374-385. https://doi.org/10.1016/j.jrp.2008.12.008

Welker, R., & Mohr, K. (2017). A curricular method for 21st century learning. *Journal of Education & Social Policy, 7*(1), 76-79. https://l24.im/DLwQkz

Woodman, R. W. (1981). Creativity as a concept in personality theory. *Journal of Creative Behavior, 15*(1), 43-66. https://doi.org/10.1002/j.2162-6057.1981.tb00273.x

Yıldız, K., & Yılmaz, B. (2020). Sınıf öğretmeni adaylarının eleştirel düşünme ve yanal düşünme eğilimleri arasındaki ilişki [The relationship between critical and lateral thinking dispositions of primary school teacher candidates]. *Bolu Abant Izzet Baysal University Journal of Faculty of Education, 20*(1), 335-353. https://dx.doi.org/10.17240/aibuefd.2020.20.52925-578949

Yin, R. K. (2018). *Case study research and applications.* Sage.

Yu, C. H. A. (2022). *Data mining and exploration from traditional statistics to modern data science*. CRC Press.

Zou, P. X. W., & Xu, X. (2023). *Research methodology and strategy*. Wiley.

Zümbül, S. (2019). Öğretmen adaylarının psikolojik iyi oluş düzeylerinde bilinçli farkındalık ve affetmenin yordayıcı roller [Mindfulness and forgiveness as predictors of psychological well-being levels of teacher candidates]. *Ege Journal of Education, 20*(1), 20-36. http://dx.doi.org/10.12984/egeefd.481963

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