



## MEDIATING ROLE OF PRIMARY SCHOOL STUDENTS' RESEARCH SKILLS BETWEEN CAREER CURIOSITY AND WELL-BEING

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### Abstract

The career-related curiosity of elementary school students before transitioning to high school may substantially affect their emotional and psychological well-being. Research skills developed during this period can fulfill curiosity and enhance overall well-being. This study investigated how research skills mediate the relationship between career-related curiosity and the emotional-psychological well-being of elementary school students. This study was conducted using a quantitative correlational research design to examine the relationships between career curiosity, research skills, and emotional-psychological well-being among elementary school students. The sample consisted of 286 students aged 9 to 14 from a district in İstanbul, Türkiye. Data were gathered using the Personal Information Form, the Stirling Children's Emotional-Psychological Well-being Scale, and the Career Development Scale for Children. Descriptive statistics and correlation analyses were used to inform structural equation modeling, which was used to evaluate the proposed mediation model. The results indicated that career-related curiosity (independent variable) directly influenced emotional-psychological well-being (dependent variable), with an indirect effect fully mediated by research skills (mediator variable). However, when research skills were included in the model, this direct effect became statistically no significant, demonstrating a full mediation effect. In other words, research skills entirely mediated the relationship between career-related curiosity and emotional-psychological well-being. The study's findings are analyzed in the context of current literature, with suggestions for educational practices and implications for school counselling and career guidance.

**Keywords:** Career curiosity, research skills, well-being, primary school student.

### INTRODUCTION

Research skills play a crucial role in fostering cognitive and emotional growth; however, their development in childhood is mainly stimulated by curiosity. Career-related curiosity, in particular, can enhance elementary school students' motivation to learn, promoting the acquisition of research skills and contributing to emotional and psychological well-being. This connection highlights the necessity of integrating career curiosity into educational curricula, with research skills supporting students' intellectual, emotional, and social development, promoting autonomy, academic performance, and stronger peer relationships (Belfi & Borghans, 2025; Schultheiss, 2008; Schultheiss et al., 2005; Watson & McMahon, 2005). Early career planning is becoming increasingly essential in the modern world, driven by rapid technological advances and a dynamic global labor market. Career development is not merely about job selection but a lifelong learning process involving cognitive and emotional growth (Dilmaç & Bakır, 2022). Curiosity—a core trait in early career development—shapes children's learning behavior, academic involvement, and motivation to explore (Dilmaç & Gökalp-Şimşir, 2022; Kırkiç, 2022). Inquisitive behavior also supports emotional well-being by providing a sense of purpose and engagement. Well-being is more than the absence of distress; it represents flourishing across mental, emotional, and spiritual domains. Seligman's (2012) PERMA model and Ryff's psychological



well-being framework (Gündoğan, 2022; Ryff, 1989) emphasize positive emotions, engagement, meaning, accomplishment, personal growth, and autonomy. When curiosity leads children to explore, it drives the development of research skills, such as information-seeking, self-reflection, and goal-setting, all of which contribute to career development and overall well-being. Although these constructs are conceptually related, they represent distinct psychological processes. Career curiosity refers to a motivational and exploratory tendency that encourages children to ask questions about future roles, interests, and learning opportunities (Schultheiss, 2008; Stead et al., 2016). In contrast, research skills represent the cognitive and behavioral competencies used to investigate information, evaluate alternatives, and solve problems within learning contexts. Thus, curiosity functions primarily as a motivational driver of exploration, whereas research skills represent the applied abilities that enable children to transform exploratory motivation into structured learning and problem-solving activities. Students who develop these skills are more academically successful and better equipped to face future challenges. Despite growing academic interest in the topic, few empirical studies explore the intersection of career curiosity, research skills, and well-being during childhood (Stead et al., 2016). Although research on children's career development has expanded internationally, studies examining the relationship between career curiosity, research skills, and psychological well-being within different cultural and educational contexts remain limited. Investigating these relationships in the Turkish educational context provides an opportunity to contribute to global discussions on early career development and socio-emotional learning during childhood. This study examined how research skills mediate the relationship between career-related curiosity and emotional-psychological well-being in elementary school students, with the goal of informing educational strategies that foster holistic development.

### **Career Curiosity in Childhood**

Career development is a lifelong process that encompasses not only job selection, self-awareness, goal formulation, and the pursuit of meaning, but also the continuous interaction between individuals' values, interests, and abilities with social, cultural, and economic contexts (Brown, 2002; Herr et al., 2004; Savickas, 2005; Super, 1990). Early childhood, generally defined as the period from birth to approximately age 8, is a critical stage for building foundational traits such as curiosity, self-concept, and time perspective, which significantly influence career identity and life satisfaction in later stages (Berk, 2018; Papalia & Martorell, 2021). However, the age range examined in the present study (9–14 years) represents a transitional developmental period spanning late childhood and early adolescence. During this transition, children gradually move from concrete operational thinking toward more advanced cognitive processes associated with early adolescence, which enables more structured exploration of interests, future roles, and personal identity. Career curiosity refers to an individual's tendency to explore career-related information, seek alternatives, and actively investigate possible life paths (Savickas, 2002; 2013). Rooted in Super's developmental theory and further expanded within Career Construction Theory, career curiosity is considered one of the four key dimensions of career adaptability, concern, control, and confidence (Savickas & Porfeli, 2012). In childhood, it manifests as asking questions about occupations, exploring the environment, and developing an early awareness of potential future roles. However, as students move toward early adolescence, this curiosity may evolve from general inquisitiveness into more systematic career exploration and identity-related reflection, particularly as they approach important educational transitions such as the move to secondary education. Super's career development model highlights nine dimensions—curiosity, research orientation, self-concept, locus of control, interests, planning, time perspective, career information, and significant others—all of which should be cultivated early to support favorable career outcomes. Research consistently shows that curiosity drives children to seek information and develop research orientation, enhancing self-awareness and intrinsic motivation (Schultheiss, 2008; Schultheiss et al., 2005). This increases vocational engagement and subjective well-being (Gamboa et al., 2023). Within this developmental transition from late childhood to early adolescence, research skills may play a particularly important role by helping students transform their natural curiosity into structured inquiry, critical thinking, and goal-oriented exploration. Recent experimental studies support these claims. For example, Alan and Mumcu (2024) demonstrated that fostering curiosity in elementary school students



enhanced academic performance and knowledge retention. While not directly focused on career-related curiosity, these findings highlight the foundational role of curiosity in promoting adaptive learning skills, which aligns with the present study's focus on research skills as a mediator between curiosity and well-being. Similarly, Abdelghani et al. (2024) improved curiosity-driven and metacognitive skills through workshops, while Valikhani et al. (2023) demonstrated gains in career planning and exploration among children. Despite this, the mediating role of research skills in the link between early career curiosity and emotional-psychological well-being remains underexplored. Most existing literature focuses on adolescence or academic outcomes, overlooking emotional growth in primary years. This study addressed this gap by examining how research skills mediate the relationship between career-related curiosity and emotional well-being in elementary school students, promoting a more integrated and socioemotionally informed model of early career development.

### **Emotional–Psychological Well-Being of Children**

Well-being is a multidimensional construct that encompasses both objective living conditions and individuals' cognitive and emotional evaluations of their experiences (Schulte et al., 2015). Emotional well-being reflects life satisfaction and the ability to sustain positive emotional states (Keyes, 2002). Emotional–Psychological Well-Being (EPW) has been conceptualized within both hedonic and eudaimonic traditions. Hedonic well-being emphasizes life satisfaction and the balance of positive over negative affect (Diener, 1984; Keyes, 2002), whereas eudaimonic well-being emphasizes realizing one's potential, personal growth, and meaning in life (Ryff, 1989). Integrative models, such as Keyes' (2002) mental health continuum, combine these perspectives by framing well-being as a state of flourishing that includes emotional vitality, psychological functioning, and social connectedness. In childhood, EPW is closely linked to self-regulation, resilience, and school adjustment, reflecting both individual traits (e.g., optimism, self-efficacy) and contextual supports (e.g., family and classroom climate) (Deci & Ryan, 2000; Suldo et al., 2011). Positive emotions, such as enthusiasm, joy, and attentiveness, enhance awareness and adaptability, fostering resilience and broadening cognitive resources. In contrast, the lack of such emotions may lead to emotional stagnation (Fredrickson & Branigan, 2005). While negative emotions like anxiety and anger may hinder well-being, moments of serenity signal emotional regulation competence (Watson et al., 1988). Psychological well-being goes beyond mood states, encompassing autonomy, purpose, environmental mastery, and relationships (Obrenović et al., 2020; Ryff & Keyes, 1995). Ryff's (1989) model comprises six dimensions: self-acceptance, personal growth, life purpose, positive relations, autonomy, and mastery, all of which are essential for meaning, identity, and self-efficacy. Psychological well-being supports children's academic success, stress resilience, and social competence (Söner & Yılmaz, 2020). Ecclestone (2012) highlights the value of emotional intelligence, mindfulness, empathy, and resilience in child development. These capacities aid emotional regulation and identity formation, promoting long-term well-being. Recent studies emphasize the importance of integrated models, which include intrapersonal factors (e.g., optimism, self-awareness) and environmental support (e.g., family and school climate). Enhancing reflective thinking and inquiry skills through research-oriented activities can improve emotional and psychological well-being. Therefore, elementary school students' EPW should be viewed holistically—cognitively, affectively, and behaviorally. Promoting emotional well-being through research skill development fosters a nurturing school environment that boosts academic achievement and social flourishing, preparing students for future success.

### **Research Skills in Childhood**

In today's knowledge-driven society, early development of research skills is essential for fostering cognitive growth, scientific literacy, and lifelong learning. These skills involve formulating questions, gathering and analyzing information, drawing evidence-based conclusions, and applying knowledge across contexts (Booth et al., 2008; Creswell, 2014; Leavy, 2017). Research literacy also includes transferable competencies relevant to education, health, business, and the social sciences, emphasizing critical thinking, ethical reasoning, and information evaluation (Fink, 2013; Healey & Jenkins, 2009). Research literacy refers to an individual's ability to understand, interpret, and critically evaluate research processes and findings, and to apply this knowledge across various contexts (Mertens, 2019;



Zawacki-Richter et al., 2020). In childhood education, these skills do not emerge spontaneously; instead, they are stimulated by curiosity-driven exploration. Naturally inquisitive children begin to ask meaningful questions, assess the credibility of information, and use evidence-based reasoning to solve problems (Bapanova et al., 2023). Structured learning environments encouraging curiosity can significantly improve hypothesis generation, evidence evaluation, and question formulation (Jirout, 2020; Spektor-Levy et al., 2013). Thus, curiosity serves as a foundation upon which research skills develop, and these competencies in turn support children's autonomy, self-regulation, and emotional resilience. Research skills empower children to navigate uncertainty, manage stress, and engage meaningfully with their surroundings (Corbí et al., 2024). Moreover, they contribute to self-efficacy and emotional well-being by enabling students to explore their interests and cope with academic and social demands (Gamboa et al., 2023). Such empowerment promotes self-esteem, psychological flexibility, and career exploration (Kashdan & Rottenberg, 2010). Despite their importance, limited research directly addresses the role of research skills in shaping childhood emotional health. Therefore, this study examined how curiosity leads to the development of research skills, which foster integrated cognitive and emotional development in elementary school learners.

### **The Interrelationship between Career Curiosity, Emotional–Psychological Well-Being, and Research Skills**

Within educational frameworks, this interaction underscores the importance of fostering curiosity as a catalyst for developing research skills, which in turn supports children's emotional and psychological well-being. Students are not only prepared for academic achievement through this holistic approach, but they are also equipped with the critical life skills necessary for future objectives. Fostering curiosity and teaching research skills are two of the most effective ways for teachers to improve the emotional resilience of their students. As a result, students can tackle the complexities of academic and personal difficulties with greater ease. According to Banerjee et al. (2016), this underscores the importance of schools embracing comprehensive programs that integrate emotional and social development with academic courses. These programs should be implemented without exception. In this way, an environment conducive to all students will be fostered.

### **Significance of the Study**

This inquiry into elementary school children's research skills, career-related curiosity, and EPW is crucial, as foundational competencies acquired in early education have a significant impact on career exploration and mental health. Research skills foster autonomy, accountability, and innovation, laying the groundwork for personal and professional success (Martínez Mora et al., 2018). Curiosity, a vital socio-emotional skill, enhances vocational interest and facilitates identity development (Gamboa et al., 2023). Interpersonal curiosity is correlated with social-emotional competence and well-being, with gender serving as a moderator of these effects, suggesting that curiosity operates differently across groups (Han et al., 2023). These findings highlight the complex role of curiosity in developmental outcomes. Furthermore, research competence and professional inquisitiveness help students adapt to future challenges (Gamboa et al., 2023), especially within supportive educational environments that nurture cognitive and emotional growth (Zhang & Yuen, 2022). Importantly, the age range examined in this study (9–14 years) represents a developmental transition between late childhood and early adolescence (Berk, 2018; Papalia & Martorell, 2021). This period is not merely an extension of childhood but a critical developmental window in which curiosity gradually evolves from general inquisitiveness and playful exploration into more structured academic and career-related inquiry. Developmental theory suggests that students during this stage begin to move from concrete operational thinking toward more advanced reasoning abilities that support systematic information seeking, reflection, and goal-oriented exploration (Berk, 2018; Piaget, 1972). While curiosity and career guidance are often studied during adolescence or higher education, limited research investigates the mediating role of research skills in the relationship between early vocational curiosity and EPW in elementary school contexts. In rapidly evolving, technology-driven societies, preparing children early for career development is increasingly important. Studies indicate that metacognition and self-regulation, activated through curiosity, support inquiry-based learning and engagement (Abdelghani et



al., 2024). Understanding this developmental transition is particularly important for several reasons. First, the cognitive changes occurring during late childhood and early adolescence allow students to transform natural curiosity into more systematic research behaviors and information-seeking strategies (Schultheiss, 2008). Second, this stage represents a critical psychological preparation period for significant educational transitions, such as the move to secondary education, where students are expected to make increasingly complex academic and future-oriented decisions. Third, fostering career curiosity during this developmental phase may support early identity exploration and reduce uncertainty related to educational and career pathways, thereby contributing directly to students' emotional and psychological well-being (Savickas, 2013). Therefore, integrating career curiosity, research skills, and emotional well-being into early education is essential. This study fills a critical gap by examining how research skills mediate the relationship between career-related curiosity and EPW in elementary students. It contributes theoretically and practically to educational psychology, career education, and socio-emotional learning at the foundational developmental stage.

### **The Present Study and Hypotheses**

This study examined the relationship between career curiosity and elementary school children's EPW, and how research skills mediate this relationship. Numerous studies indicate that curiosity indirectly affects students' mental health by enhancing skills that support learning. Research by Sağlam and Topsumer (2019), Roslan and Cho (2022), and Lydon-Staley et al. (2022) demonstrates that curiosity enhances psychological well-being and facilitates the achievement of key life events. In this study, students' career curiosity is expected to improve their mental health indirectly by fostering the acquisition of research skills. For example, Spektor-Levy et al. (2013) noted that curiosity fosters children's question-asking and scientific reasoning, which contribute to the development of research skills. Similarly, Wagner (2020) and Eising and Philbin (2022) showed how curiosity improves academic research competencies. The findings indicate that career curiosity enhances research skills, positively impacting emotional and psychological well-being. EPW promotes life, pleasure, positivity, and meaning (Ryff, 1989; Seligman, 2012). Fredrickson and Branigan (2005) found that pleasant feelings increase consciousness and improve emotional well-being. Therefore, cultivating research skills is essential for elementary school students, as it promotes active engagement in learning and enhances their capacity to manage intricate emotional and social contexts. These skills enable students to interact with their environment, promoting autonomy and self-efficacy, which are essential for emotional and psychological well-being. Developing research skills can enhance coping mechanisms, allowing students to manage academic pressures and personal challenges more effectively, promoting a healthier emotional state. This supports the idea that research skills mediate the positive effects of career curiosity on mental health. Schultheiss (2008) and Schultheiss, Palma, and Manzi (2005) further note that curiosity helps children develop career awareness and that research promotes self-discovery and environmental understanding. The results suggest that research skills serve as a mechanism that transmits the effects of job curiosity to children's emotional and psychological outcomes. Based on the literature, the following hypotheses were tested.

H<sub>1</sub>. A significant relationship exists between career curiosity, research skills, and emotional and psychological well-being.

H<sub>2</sub>. Research skills play a mediating role in the relationship between career curiosity and emotional and psychological well-being.

## **METHOD**

### **Research Design**

This study was conducted using a quantitative correlational research design to examine the relationships between career-related curiosity, research skills, and emotional-psychological well-being among elementary school students. Correlational research designs are widely used to investigate the direction and strength of relationships between variables without manipulating them (Creswell & Creswell, 2018). Within this framework, the present study aimed to explore whether research skills function as a



mediating mechanism in the relationship between career-related curiosity and emotional-psychological well-being. To test the proposed mediation model, structural equation modeling (SEM) was employed as the primary statistical analysis technique. SEM enables researchers to simultaneously examine complex relationships between latent and observed variables and to evaluate both direct and indirect effects within a single model (Kline, 2011; Byrne, 2016). In the proposed model, career-related curiosity was treated as the independent variable, emotional-psychological well-being as the dependent variable, and research skills as the mediating variable.

### Participants

The study was conducted in the Arnavutköy district of Istanbul, Türkiye. A convenience sampling method was employed, and schools that were accessible to the researchers were included in the study. This district was selected because it represents the socioeconomic and demographic characteristics commonly observed in large metropolitan educational contexts in Türkiye, making it suitable for examining psychological and educational variables among school-aged students. The selected schools were accessible and reflected the urban socioeconomic characteristics of the region. The final sample consisted of 286 students aged between 9 and 14 years. More than half of the participants (58.7%) were female, while 41.3% were male. The highest participation was observed among 7<sup>th</sup>-grade students. Detailed demographic information regarding participants' gender, grade level, and age distribution is presented in Table 1.

**Table 1.** Demographic characteristics of participants.

Variable	Category	Number	Percentage (%)
Gender	Female	168	58.7
	Male	118	41.3
Grade	4 <sup>th</sup> grade	61	21.3
	5 <sup>th</sup> grade	51	17.8
	6 <sup>th</sup> grade	37	12.9
	7 <sup>th</sup> grade	104	36.4
	8 <sup>th</sup> grade	33	11.5
Age	9 years	31	10.8
	10 years	56	19.6
	11 years	39	13.6
	12 years	88	30.8
	13 years	37	12.9
	14 years	35	12.2

According to developmental psychology classifications (Berk, 2018; Papalia & Martorell, 2021), the participants fall within the middle childhood (ages 6–11) and early adolescence (ages 12–14) developmental periods. This classification served as the developmental framework for the present study.

### Data Collection Tools

Four tools were used to collect data: the Personal Information Form, the Stirling Emotional-Psychological Well-being Scale for Children (SCWBS), the Self-Directed Learning Implementation Skills Scale for Elementary School Students, and the Career Development Scale for Children.

*Personal Information Form:* This form, developed by the researchers, contains questions about students' demographic information, including gender, grade level, and age.

*Stirling Emotional and Psychological Well-being Scale for Children:* This scale, developed by Liddle and Carter (2015), assesses children's emotional and psychological well-being levels. The scale was adapted into Turkish by Akın et al. (2016). It consists of 12 items rated on a five-point Likert scale (1 = Never, 2 = Not much of the time, 3 = Some of the time, 4 = Quite a lot of the time, 5 = All of the time). There are no reverse-coded items in the scale, and higher scores indicate higher levels of emotional and psychological well-being. The Turkish adaptation study reported satisfactory psychometric properties, with item–total correlations ranging between .57 and .73 and a Cronbach's



alpha reliability coefficient of .90 (Akin et al., 2016). In the present study, internal consistency reliability was assessed using Cronbach's  $\alpha$  and McDonald's  $\omega$  coefficients. Before testing the structural model, the measurement model was examined through confirmatory factor analysis (CFA), and the fit indices indicated acceptable model fit (CFI = .936, TLI = .901, SRMR = .061, RMSEA = .075).

*The Self-Directed Learning Implementation Skills Scale for Elementary School Student:* This scale was developed by Gündüz and Selvi (2016) to assess elementary school students' self-directed learning skills. The theoretical basis of the scale is the Self-Directed Learning (SDL) theory (Knowles, 1975; Guglielmino, 1978), which emphasizes learners' autonomy, responsibility, and ability to plan, implement, and evaluate their learning processes. The scale consists of five sub-dimensions: research skills, thinking skills, strategy use skills, evaluation skills, and peer collaborative learning. The scale consists of 45 items and employs a five-point Likert scale (1 - Not suitable for me, 2 - Minimal ideal for me, 3 - Somewhat ideal for me, 4 - Fairly suitable for me, 5 - Completely suitable for me). As the score obtained from the scale increases, the ability to conduct self-learning also increases. In the development study of the scale, item factor load values were found to be between .41 and .74. In the confirmatory factor analysis of the scale, it was seen that the model had a good fit ( $\chi^2/df= 1.38$ , RMSEA= .047, SRMR= .060, RMR= .074, NFI= .92, NNFI= .97, CFI= .97, GFI= .75, AGFI= .72). The current study used Cronbach's  $\alpha$  and McDonald's  $\omega$  values to check for dependability. The Cronbach's alpha reliability coefficients for the scale were found to be .90 for research skills, .86 for thinking skills, .79 for strategy use skills, .81 for evaluation skills, and .73 for collaborative learning skills with peers. Before proceeding to the SEM, the measurement model was examined using confirmatory factor analysis (CFA), and the fit indices were acceptable [CFI = .927, TLI = .916, SRMR = .046, RMSEA = .0526].

*The Childhood Career Development Scale:* This scale was developed by Schultheiss and Stead (2004) to assess children's career development levels. Bacanlı et al. (2007) adapted the scale into Turkish, and written permission to use this adaptation in the present study was obtained from the authors. The scale was developed according to Super's (1990) career development model, originally designed for children. Following the models, the scale consists of eight sub-dimensions: curiosity, interest, information, locus of control, key figures, time perspective, planning, and self-concept, comprising a total of 52 items. The scale is a three-point Likert scale (1 - Not suitable for me, 2 - I am undecided, 3 - Suitable for me). As the score obtained from the scale increases, the level of career development also increases. In analyses to adapt the scale to Turkish, the Cronbach's alpha coefficient for the overall scale was .78. To assess scale reliability, the scale was administered to students twice, with an interval of 21 days, to estimate the test-retest stability coefficient. In the Turkish adaptation study (Bacanlı et al., 2007), the stability coefficients were reported as: information sub-dimension ( $r=.51$ ), curiosity sub-dimension ( $r=.54$ ), interests sub-dimension ( $r=.57$ ), locus of control sub-dimension ( $r=.53$ ), key figures sub-dimension ( $r=.49$ ), time perspective sub-dimension ( $r=.51$ ), planning sub-dimension ( $r=.55$ ), self-concept sub-dimension ( $r=.57$ ), and the whole scale ( $r=.71$ ). In the present study, reliability analysis for the curiosity subscale yielded Cronbach's  $\alpha = .64$  and McDonald's  $\omega = .66$ , which are considered acceptable for research purposes (Taber, 2018). Before proceeding to the SEM, the measurement model was examined through confirmatory factor analysis (CFA), and the fit indices were found to be at acceptable levels [CFI = .983, TLI = .996, SRMR = .066, RMSEA = .0778].

### **Data Collection and Analysis**

Data were collected during the 2024–2025 academic year from students attending public schools in the Arnavutköy district of Istanbul. After obtaining the necessary permissions from school administrations and educational authorities, the data collection instruments were administered to students in classroom settings under the supervision of the researchers and school counselors. Participation was voluntary, and students were informed about the purpose of the study before completing the questionnaires. The completion of the survey instruments took approximately 15–20 minutes. Before conducting the structural equation modeling analysis, key statistical assumptions were evaluated to ensure the suitability of the data for multivariate analysis. These procedures included the examination of missing values, identification of outliers, and assessment of the normality of the data distribution. Prior to the



main analyses, the dataset was screened for missing values, outliers, and assumptions of normality. Multivariate outliers were assessed using Mahalanobis distance, and outliers were identified based on the chi-square threshold ( $p < .001$ ,  $df = \text{number of variables}$ ). Accordingly, 25 cases were removed from the dataset. Skewness and kurtosis values ranged between  $-1$  and  $+1$ , indicating that the data approximated a normal distribution (Morgan, 2004). Subsequently, descriptive statistics and Pearson correlation analyses were first conducted to examine relationships among the variables. Subsequently, structural equation modeling (SEM) was employed to test the proposed mediation model. The analyses were conducted using SPSS 25.0 for descriptive and correlation analyses and AMOS 20.0 for structural equation modeling. Model fit was evaluated using commonly recommended goodness-of-fit indices, including CFI, TLI, SRMR, and RMSEA. In addition, bootstrap analyses with 5000 resamples were conducted to estimate the indirect effects and their confidence intervals (Preacher & Hayes, 2008).

## FINDINGS

The descriptive statistical values of curiosity, research skills, and EPW variables used in the study, along with the findings of the Pearson Correlation Analysis conducted to examine the relationship between these variables, are presented in Table 2.

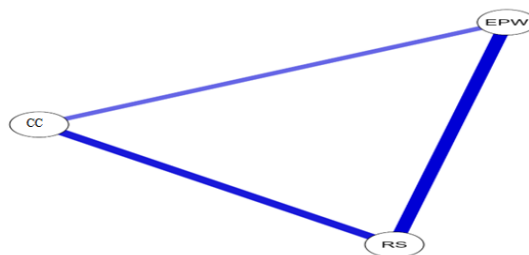
**Table 2.** Descriptive statistics and correlations among study variables.

	1. Emotional and psychological well-being	2. Research skills	3. Curiosity	Confidence Intervals	
				95% CI Lower	95% CI Upper
1. Emotional and psychological well-being	1			-	-
2. Research skills	.571 **	1		.487	.644
3. Curiosity	.322 **	.509 **	1	.214	.423
Arithmetic mean	46.60	65.76	17.50	-	-
Standard deviation	6.19	8.39	2.49	-	-
Kurtosis	-.086	-.714	-.773	-	-
Skewness	-.112	.577	.180	-	-

Note. CI = confidence interval;  $\alpha$  = Cronbach's alpha;  $\omega$  = McDonald's omega. \*\* $p < .01$ .

When Table 2 is examined, the relationship between EPW and research skills was calculated as  $r = .571$  and found to be statistically significant ( $p < .01$ , 95% CI [.487, .644]). According to Cohen's (1988) guidelines, this correlation represents a large effect size. The relationship between EPW and Curiosity was  $r = .322$  and significant ( $p < .01$ , 95% CI [.214, .423]). Based on Cohen's classification, this indicates a medium effect size. Finally, the relationship between Curiosity and Research Skills was calculated as  $r = .509$  and was statistically significant ( $p < .01$ ). This correlation corresponds to a large effect size according to Cohen's (1988) criteria. When the arithmetic variables of EPW ( $M = 46.60$ ,  $SD = 6.19$ ), research skills ( $M = 65.76$ ,  $SD = 8.39$ ), and curiosity ( $M = 17.50$ ,  $SD = 2.49$ ) are examined, it is found that the participants generally had values above the average. Based on these findings, H1, which states that there is a significant relationship between career curiosity, research skills, and emotional-psychological well-being, was supported.

Network analysis was conducted to depict the correlational relationship between elementary school students' curiosity, research skills, and EPW levels, as shown in Figure 1.



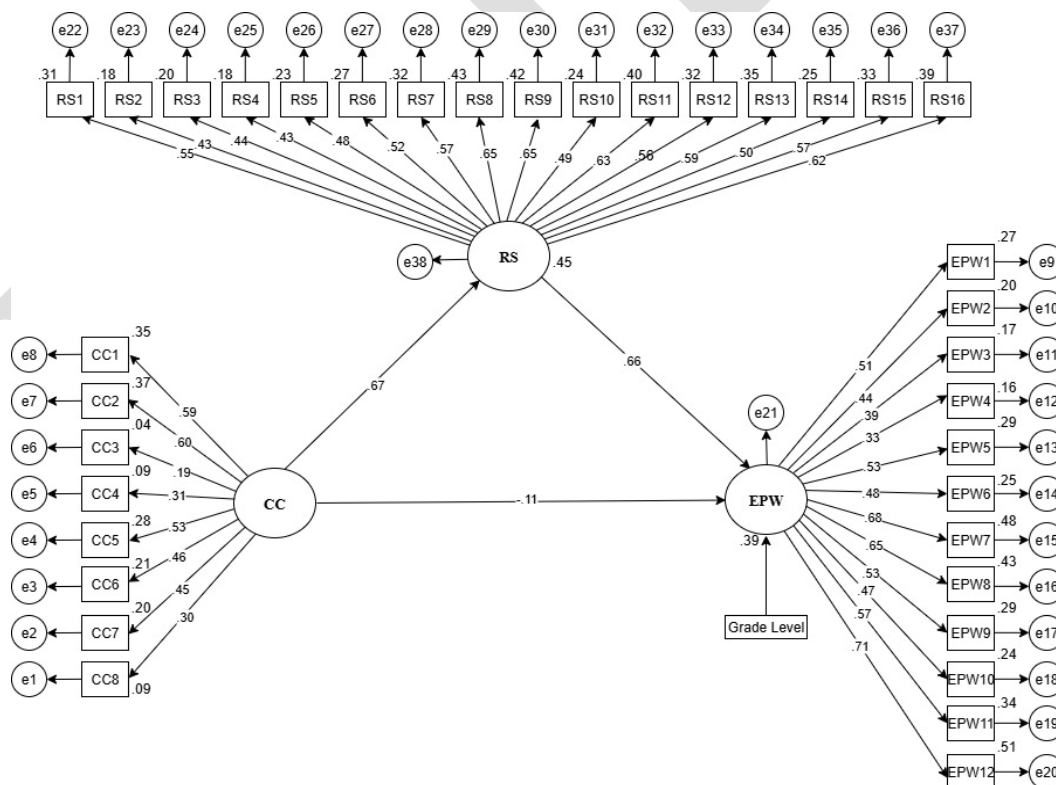
**Figure 1.** Network analysis. Blue lines represent positive correlations.

Note. CC = Curiosity, RS= Research Skills, EPW = Emotional and Psychological Well-Being.

This network analysis illustrates the relationships between Curiosity, Research Skills, and Emotional-Psychological Well-being. The thickness of the blue lines, representing positive correlations, indicates the strength of the relationship between the variables. The strongest link was between Research Skills and Emotional-psychological well-being, indicating that individuals' research competencies are directly related to their emotional and psychological well-being. The link between Curiosity and Research Skills is also quite strong, supporting that curious individuals are more likely to develop research skills and acquire information. The relationship between curiosity and emotional-psychological well-being was weaker but still positive, suggesting that curiosity may affect psychological well-being through research skills rather than directly. This analysis suggests that research skills can influence psychological well-being, while curiosity has an indirect effect on this process.

### Structural Equation Modeling Analyses

The mediating role of research skills in the relationship between career-related curiosity and psychological well-being was examined using the mediation model proposed by Baron and Kenny (1986). The tested model is presented below.



**Figure 2.** Model: The mediating role of research skills in the relationship between career-related curiosity and emotional and psychological well-being.

Note. CC = Career Curiosity, EPW= Emotional and Psychological Well-Being, RS= Research Skills



In the Model, it was observed that career-related curiosity significantly predicted research skills ( $\beta = .67, p < .001$ ), and research skills significantly predicted EPW ( $\beta = .68, p < .001$ ). Regression and bias values are given in the table below.

Table 3. Regression and bias values of the Model.

Regression Values				Standard			Bias (%95)		
			Estimate	S.E.	C.R.		Lower Limit	Upper Limit	
Research Skills	<---	Career Curiosity	1.749	.454	3.853	$p < .001$	1.047	3.357	
Emotional and psychological well-being	<---	Research Skills	.664	.128	5.179	$p < .001$	.447	.914	
Emotional and psychological well-being	<---	Curiosity	-.187	.261	-.717	$p > .05$	-.811	.431	
Emotional and psychological well-being	<---	Research Skills	<---	Curiosity	1.161	.005	$p < .001$	.634	2.286

Note.  $\beta$  = standardized regression coefficient; S.E. = standard error; C.R. = critical ratio; CI = confidence interval. Bootstrap estimates are based on 5000 resamples.

The structural equation modeling results reported in Table 3 revealed that career curiosity significantly predicted research skills (Estimate = 1.749, S.E. = .454, C.R. = 3.853,  $p < .001$ , 95% CI [1.047, 3.357]). In addition, research skills significantly predicted emotional and psychological well-being (Estimate = .664, S.E. = .128, C.R. = 5.179,  $p < .001$ , 95% CI [.447, .914]). However, the direct effect of career curiosity on emotional and psychological well-being was not statistically significant (Estimate = -.187, S.E. = .261, C.R. = -.717,  $p > .05$ , 95% CI [-.811, .431]). When the indirect pathway was examined, the bootstrap results indicated that the indirect effect of career curiosity on emotional and psychological well-being through research skills was statistically significant ( $\beta = 1.161$ , S.E. = .005,  $p < .001$ , 95% CI [.634, 2.286]). These results suggest that research skills mediate the relationship between career curiosity and emotional and psychological well-being.

## DISCUSSION, CONCLUSION, and RECOMMENDATIONS

The present study investigated the mediating role of research skills in the relationship between career-related curiosity and the emotional and psychological well-being of primary school students. The results revealed that career-related curiosity did not have a significant direct effect on students' emotional and psychological well-being once research skills were included in the model. Instead, research skills fully mediated this relationship, indicating that curiosity contributes to students' well-being indirectly through the development of research-related competencies. This finding highlights an important conceptual point: while curiosity represents a valuable personal trait during childhood, its psychological benefits may emerge when it is translated into concrete competencies such as problem-solving, information literacy, and critical thinking. In other words, curiosity alone may not be sufficient to enhance emotional well-being unless it is supported by the development of research-related skills.

The results revealed that career-related curiosity alone did not have a significant direct effect on students' emotional–psychological well-being once research skills were included in the model. Instead, research skills fully mediated this relationship, meaning that curiosity contributes to students' well-being indirectly through its impact on research-related competencies. This finding clarifies an important conceptual point: while curiosity is a natural and valuable trait in childhood, it must be translated into concrete skills such as problem-solving, information literacy, and critical thinking in order to yield psychological benefits. In other words, curiosity without the development of research competencies may not be sufficient to foster emotional resilience or life satisfaction. This interpretation is consistent with previous findings, which show that curiosity plays a role in initiating exploratory behaviors but



relies on intermediary mechanisms to support well-being (Eising & Philbin, 2022; Wagner, 2020). The mediating role of research skills may also be interpreted through the lens of Self-Determination Theory (SDT), which emphasizes the fundamental psychological need for competence in promoting well-being (Deci & Ryan, 2000; Ryan & Deci, 2017). According to SDT, individuals experience higher levels of psychological well-being when they feel capable of effectively interacting with their environment and successfully mastering challenges. In the context of the present study, research skills such as problem-solving, information evaluation, and inquiry-based thinking may represent concrete expressions of competence development in children. Thus, curiosity alone may initiate exploratory tendencies, but the development of research-related competencies enables children to transform curiosity into successful learning experiences, which in turn supports emotional and psychological well-being during the transition from late childhood to early adolescence.

The strong positive relationship observed between research skills and emotional–psychological well-being reinforces the notion that cognitive and academic proficiencies contribute substantially to children’s mental health. Wardani (2020) found that academic skills are important predictors of psychological well-being, while Kart and Gelbal (2014) reported that scientific research skills significantly predict individuals’ self-efficacy, which in turn has been consistently associated with well-being (Çiçek & Almalı, 2020; Hampton, 2004; Kılınç, 2017). The present findings align with this line of research, indicating that the ability to ask questions, evaluate evidence, and apply knowledge helps students cope with academic and social challenges more effectively. Kaya (2017) also noted that problem-solving capability is a significant predictor of mental health, and Frisch (2000) emphasized that effective problem-solving is central to maintain high levels of subjective well-being. By linking curiosity to these skills, the current study underscores that research competencies serve as a bridge between natural exploratory tendencies and meaningful psychological outcomes.

From a theoretical perspective, these results expand upon Super’s life-span, life-space career development theory (Super, 1990), which acknowledges the significance of age-related stages in vocational growth. In early and middle childhood, curiosity is considered as a critical dimension of exploration. At the same time, the development of competencies such as planning, self-concept, and career information consolidates this trait into more stable identity structures. Savickas (2002) and Savickas and Porfeli (2012) identified curiosity as one of the four core dimensions of career adaptability, alongside concern, control, and confidence. However, the current study suggests that in order for curiosity to influence well-being outcomes in childhood, it must operate in conjunction with concrete research skills. Thus, this work highlights the interplay between socio-emotional factors and cognitive-developmental competencies in shaping children’s well-being.

The findings also carry practical implications for schools, guidance programs, and families. Educators should create learning environments that not only stimulate curiosity but also systematically cultivate research skills through inquiry-based projects, workshops, and problem-based learning. By embedding such approaches into curricula, schools can enhance both academic performance and socio-emotional development. Guidance services may integrate modules on emotional intelligence, stress management, and resilience training, thereby ensuring that students can translate their curiosity-driven explorations into emotional growth. Families can further support this process by encouraging children’s questioning behaviors and by providing opportunities for independent research at home. Caregiver education programs may also be beneficial in equipping parents with strategies to nurture children’s vocational interests alongside their emotional well-being. In an increasingly digital world, e-learning platforms and digital tools offer additional opportunities for fostering curiosity and independent inquiry. However, these must be paired with adult guidance to ensure that children’s engagement is developmentally appropriate and emotionally supportive.

Although this study makes a unique contribution by focusing on the mediating role of research skills in childhood, several limitations must be acknowledged. The research was conducted with a sample drawn exclusively from primary school students in a specific district of Istanbul, which restricts the generalizability of the findings. The cross-sectional design also prevents firm conclusions about



causality, and it is possible that well-being itself may enhance curiosity or research skill development over time. Additionally, although CFA results confirmed that the measurement model demonstrated acceptable fit indices, further replication with larger and more diverse samples is recommended to consolidate the validity of the findings. Longitudinal or experimental studies would be particularly valuable in clarifying the temporal order of the observed relationships. Qualitative approaches, such as interviews or observations, may provide further insights into how children subjectively perceive the links between curiosity, research skills, and well-being in everyday educational contexts.

## **Conclusion**

This study examined the mediating role of research skills in the relationship between career-related curiosity and the EPW of primary school students. *Results* revealed significant associations contributing to understanding early career development and its psychosocial aspects. A moderate, positive correlation between research skills and EPW suggests that fostering these skills may enhance students' mental health. This finding aligns with prior research indicating that academic competencies, such as self-directed learning, cognitive engagement, and problem-solving, improve self-efficacy and psychological well-being. Although few studies have directly examined this link, emerging evidence suggests that curiosity reduces research anxiety and encourages deeper learning. These findings underscore the interconnection between curiosity, research skills, and well-being in elementary education. Promoting inquiry-based and curiosity-driven learning can boost academic success and emotional resilience. The study emphasizes the integration of such activities into early curricula. Future research should employ longitudinal or experimental approaches to investigate how these variables interact over time and across diverse educational settings, thereby informing evidence-based educational policy and practice.

## **Recommendations**

This study suggests that enhancing research skills and career-related curiosity, grounded in career counselling theory, can improve the emotional and psychological well-being of primary school students. Career curiosity, originally conceptualized within vocational psychology and career counselling, emphasizes children's early exploration of interests, self-concept, and future possibilities (Super, 1990; Savickas, 2005). Therefore, the findings of this study contribute not only to educational practices but also to the theoretical understanding of career development processes in childhood. The results showed that research skills fully mediated the relationship between career curiosity and well-being. This suggests that while curiosity motivates exploration, it is through research skills that children can transform this motivation into meaningful learning and psychological benefits. Accordingly, the practical recommendations presented here are directly linked to the study's empirical findings. For educators, introducing age-appropriate career education early can foster curiosity and promote self-discovery. Developing research skills through workshops, project-based learning, and inquiry-based curricula is consistent with the observed mediation effect, as these methods strengthen the skills that connect curiosity to well-being. For policymakers, designing curricula that integrate socio-emotional learning with career exploration will ensure that the structural links demonstrated in the model are addressed in practice. Families also play a vital role; caregiver education can reinforce children's curiosity and support their research practices at home, enhancing well-being. Finally, digital tools and supportive school climates can extend these opportunities, further validating the mediating process revealed by the study. Future research should adopt longitudinal and cross-cultural designs to investigate how career curiosity influences well-being across diverse educational settings when combined with research skills. Including additional variables such as academic motivation and cognitive engagement may deepen the model's explanatory power, addressing both the career counselling framework and the broader educational context. In addition, future studies should focus on developing more robust and developmentally appropriate measurement instruments for assessing career curiosity in children. Considering that the internal consistency of the scale used in the present study was relatively modest ( $\alpha = .64$ ), improved measurement tools may provide more reliable assessments of curiosity-related constructs in early educational contexts.



## Limitations of the Research

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design limits causal inferences regarding the relationships among career-related curiosity, research skills, and emotional and psychological well-being. Second, all data were collected through self-report measures completed by primary school students, which may have introduced response biases such as social desirability and inaccuracies related to children's developmental characteristics. Third, the study was conducted within a specific cultural and educational context, limiting the generalizability of the findings to different populations and settings. Finally, although research skills were identified as a significant mediator, other potentially influential variables, such as academic motivation, self-efficacy, family support, and school climate, were not included in the model. Future longitudinal, experimental, and cross-cultural studies are needed to validate and extend the present findings.

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No funding was received from any individual or institution for this research.

## Ethics and Conflict of Interest

This study was conducted in accordance with the principles of ethical research and the Declaration of Helsinki. Ethical approval was obtained from the İstanbul Sabahattin Zaim Üniversitesi Ethics Committee (Approval Date: 28/07/2023, Decision No: 2023/07). In addition, the necessary permissions to conduct the study in schools were obtained from the relevant educational authorities affiliated with the Ministry of National Education. Since all participants were under the age of 16, written informed consent was obtained from their parents or legal guardians, and voluntary assent was obtained from the students themselves. Participants were informed about the purpose of the study and their right to withdraw from the study at any time without penalty. All collected data were kept confidential, anonymized during analysis, and used solely for scientific research purposes in accordance with data protection and privacy regulations. The authors declare that they have no conflicts of interest.

## Author Contribution

All authors contributed equally to the conception and design of the study, data collection, data analysis and interpretation, manuscript writing, and revision processes. All authors reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

## Data Availability

The data that support the findings of this study are available on request from the corresponding author.

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