Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi •Temmuz 2025, 62: 224-246• ISSN: 2147-5202
DOI: 10.15285/maruaebd.1665862

ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

The Effect of Artificial Intelligence-Supported Career Psychological Counseling Training for Psychological Counselors on Their Self-Efficacy Levels

Psikolojik Danışmanlar için Yapay Zekâ Destekli Kariyer Psikolojik Danışmanlığı Eğitiminin Öz Yeterlik Düzeylerine Etkisi

Osman SÖNER*

Abstract

This study examines the effect of artificial intelligence-supported career counseling training programs on counselors' career counseling self-efficacy levels. The study used a quasi-experimental design with pretest, posttest, and follow-up test control groups and the Career Counseling Self-Efficacy Scale as a data collection tool. Within the scope of the study, pretest, posttest, and follow-up tests were applied to the experimental and control groups. According to the study results, a significant increase was observed in the career counseling self-efficacy levels of the counselor candidates in the experimental group, and this increase was maintained in the follow-up test. As a result of MANOVA and repeated measures ANOVA analyses, a high effect size was found for time and group interaction. During the AI-supported training process, it was determined that the implementation skills of the counselors were improved thanks to client simulations, personalized scenarios, and digital feedback systems. The findings show that integrating artificial intelligence into counseling education contributes to developing professional competencies. In this context, suggestions were made for disseminating artificial intelligence-supported applications in counselor education and structuring them as ethics-based.

* Istanbul Sabahattin Zaim University, İstanbul, Turkey. Educational Science. E-posta: osman.soner@izu.edu.tr, ORCID: 0000-0001-9741-5357.

Atıf için: Söner, O. (2025). The effect of artificial ıntelligence-supported career psychological counseling training for psychological counselors on their self-efficacy levels. *Marmara Üniversitesi Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 62*(62), 224-246. https://doi.org/10.15285/maruaebd.1665862

Makale Gönderim Tarihi: 26.03.2025 **Yayına Kabul Tarihi:** 20.05.2025

Keywords: Career counseling, psychological counseling, artificial intelligence, and program development

Öz

Bu araştırmanın amacı, yapay zekâ destekli kariyer danışmanlığı eğitim programının psikolojik danışmanların kariyer psikolojik danışmanlığı öz-yeterlik düzeyleri üzerindeki etkisini incelemektir. Araştırmada ön test son test ve izleme testi kontrol gruplu yarı deneysel desen kullanılmış ve veri toplama aracı olarak Kariyer Psikolojik Danışmanlık Öz-Yeterlik Ölçeği kullanılmıştır. Çalışma kapsamında deney ve kontrol gruplarına ön test, son test ve izleme testi uygulanmıştır. Araştırma sonuçlarına göre, deney grubunda yer alan psikolojik danışman adaylarının kariyer danışmanlığı öz-yeterlik düzeylerinde anlamlı bir artış gözlemlenmiş; bu artışın izleme testinde de sürdüğü belirlenmiştir. MANOVA ve tekrarlı ölçümler ANOVA analizleri sonucunda, zaman ve grup etkileşiminde yüksek düzeyde etki büyüklüğü bulunmuştur. Yapay zekâ destekli eğitim sürecinde, danışan simülasyonları, kişiselleştirilmiş senaryolar ve dijital geribildirim sistemleri sayesinde danışmanların uygulama becerilerinde gelişim sağlandığı saptanmıştır. Elde edilen bulgular, yapay zekânın psikolojik danışmanlık eğitimine entegrasyonunun, mesleki yeterliklerin gelişimine katkı sunduğunu göstermektedir. Bu bağlamda, yapay zekâ destekli uygulamaların danışman eğitiminde yaygınlaştırılması ve etik temelli biçimde yapılandırılmasına yönelik önerilerde bulunulmuştur.

Anahtar Kelimeler: Kariyer, psikolojik danışmanlık, yapay zeka, program.

Geniş Özet

Giriş

21. yüzyılda teknolojik gelişmelerin psikolojik danışmanlık hizmetlerine etkisi giderek artmakta ve bu durum, meslek elemanlarının yetkinlik algılarında köklü değişimlere yol açmaktadır. Özellikle kariyer danışmanlığı alanında yaşanan yapısal dönüşümler, yapay zekâ (YZ) destekli sistemlerin kullanımını gündeme getirmiştir. Kariyer danışmanlığı, bireylerin mesleki gelişim süreçlerini anlamlandırmaları ve yönlendirmeleri açısından kritik bir müdahale alanıdır. Bu bağlamda, psikolojik danışmanların yalnızca bilgi sahibi olmaları değil, aynı zamanda kendilerini yeterli hissetmeleri, yani öz-yeterlik inançlarının güçlü olması, hizmet kalitesini doğrudan etkilemektedir. Bandura'nın (1986) sosyal bilişsel kuramına göre öz-yeterlik, bireyin belirli bir görevi başarıyla yerine getirebilme konusundaki inancıdır ve bireyin çabası, motivasyonu ve performansı üzerinde belirleyici bir role sahiptir.

Kariyer danışmanlığı öz-yeterliği ise danışmanların danışanlarının kariyerle ilgili sorunlarını anlamlandırma, uygun müdahaleleri planlama ve uygulama konusundaki kendilerine olan inançlarını ifade eder. Literatürde, yüksek öz-yeterlik düzeyine sahip psikolojik danışmanların daha etkili danışmanlık uygulamaları gerçekleştirdiği, danışanlarla daha sağlıklı ilişkiler kurduğu, daha düşük düzeyde mesleki tükenmişlik yaşadığı ve mesleki doyumlarının daha yüksek olduğu belirtilmiştir (Al-Darmaki, 2004; Larson & Daniels, 1998). Bununla birlikte, teknolojik araçların bu öz-yeterlik inancını destekleyici bir işlev görebileceği yönündeki bulgular, kariyer danışmanlığı eğitim programlarında YZ entegrasyonunun önemini ortaya koymaktadır. Özellikle büyük veri, doğal dil işleme, makine öğrenmesi gibi teknolojilerin danışmanlık süreçlerine dahil edilmesiyle,

danışmanların veri temelli kararlar alması, danışan ihtiyaçlarını daha hızlı ve kapsamlı analiz edebilmesi mümkün hale gelmiştir (Frey & Osborne, 2017; Hooley & Staunton, 2020).

Türkiye bağlamında ise, bu alanda yapılan çalışmaların sınırlı olduğu, YZ'nin kariyer danışmanlığı öz-yeterliği üzerindeki etkisinin sistematik olarak incelenmediği görülmektedir. Bu eksiklikten hareketle, bu çalışma, YZ destekli bir kariyer danışmanlığı eğitim programının psikolojik danışmanların öz-yeterlik düzeylerine etkisini deneysel bir desenle ele almayı amaçlamıştır.

Yöntem

Araştırmada, ön test-son test-izleme testli kontrol gruplu yarı deneysel desen kullanılmıştır. Katılımcılar deney ve kontrol grubu olarak ikiye ayrılmış, yalnızca deney grubuna yapay zekâ destekli kariyer danışmanlığı eğitimi uygulanmıştır. Kontrol grubuna herhangi bir müdahalede bulunulmamıştır. Çalışmada veri toplama aracı olarak Kariyer Psikolojik Danışmanlık Öz-Yeterlik Ölçeği kullanılmıştır.

Çalışma grubu, kolayda örnekleme yöntemi ile belirlenmiş olup, İstanbul Küçükçekmece ilçesindeki okullarda görev yapan gönüllü psikolojik danışmanlardan oluşmuştur. Deney grubunda 11, kontrol grubunda 12 katılımcı yer almıştır. Eğitim, 5 gün boyunca günde 5 saat (toplam 25 saat) olarak gerçekleştirilmiştir. Eğitimin birinci gününde kariyer danışmanlığı kuramları, iş gücü piyasası bilgileri; ikinci ve üçüncü günlerde danışmanlık becerileri, ölçme araçları ve raporlama süreçleri; dördüncü gününde yapay zekâ teknolojileri tanıtımı; beşinci gününde ise yapay zekâ destekli danışan simülasyonları uygulanmıştır.

Veri analizinde, çok değişkenli varyans analizi (MANOVA), tekrarlı ölçümler için varyans analizi (ANOVA) ve lineer/kuadratik kontrast analizleri kullanılmıştır. Normal dağılım varsayımları Shapiro-Wilk testi ile test edilmiş; çok değişkenli normallik Mahalanobis uzaklığı ile kontrol edilmiştir.

Bulgular

MANOVA bulgularına göre, zaman (ön test, son test, izleme testi) ve grup (deney-kontrol) etkileşimi istatistiksel olarak anlamlıdır. Bu bulgu, deney grubunun öz-yeterlik puanlarında anlamlı bir artış olduğunu ve bu artışın zamanla korunduğunu göstermektedir. Tekrarlı ölçümler için ANOVA analizleri de benzer şekilde anlamlı sonuçlar vermiştir.

Kontrast analizleri sonucunda hem doğrusal hem de eğrisel değişimlerin anlamlı olduğu görülmüştür. Deney grubunda, ön testten son teste doğru net bir artış gözlenmiş, bu artış izleme testinde de büyük ölçüde korunmuştur. Kontrol grubunda ise tüm ölçüm zamanlarında öz-yeterlik düzeylerinde anlamlı bir değişiklik olmamıştır. Parametrik tahmin analizlerine göre, post-test ve izleme testi aşamalarında deney grubunun öz-yeterlik puanları kontrol grubuna göre istatistiksel olarak anlamlı düzeyde daha yüksektir.

Sonuç

Bu araştırma, yapay zekâ destekli kariyer danışmanlığı eğitiminin, psikolojik danışmanların öz-yeterlik düzeylerini anlamlı, güçlü ve kalıcı biçimde artırdığını ortaya koymuştur. Eğitim programı; bireyselleştirilmiş senaryolar, yapay danışan simülasyonları ve dijital geribildirim sistemleri ile danışmanların uygulama becerilerini geliştirmiştir. Danışmanlar, kariyer danışmanlığı süreçlerini daha bilinçli, sistematik ve etkili şekilde yürütebilme becerilerini güçlendirmiştir. Eğitim sonrasında deney grubundaki danışmanların hem kuramsal hem de uygulamaya dayalı yeterliklerinde belirgin bir artış saptanmıştır.

Tartışma

Elde edilen bulgular, Bandura'nın sosyal bilişsel kuramı doğrultusunda öz-yeterlik inancının çevresel, bilişsel ve duyuşsal etkileşimlerle şekillenebileceğini göstermektedir. Araştırma sonuçları, kısa süreli fakat yoğun yapay zekâ destekli bir eğitimin danışmanların mesleki yeterlik algılarını artırabildiğini ortaya koymuştur. Bu sonuç, önceki çalışmalarda da (Larson et al., 1992; Nota et al., 2004; Edwin & Fisher, 2023) vurgulanan danışman öz-yeterliğinin danışmanlık süreci üzerindeki belirleyici rolünü doğrular niteliktedir.

Yapay zekâ teknolojilerinin danışmanlık sürecine entegrasyonu sayesinde, danışan verileri daha hızlı analiz edilebilmekte, öneri sistemleri ve dijital geribildirimler sayesinde danışmanların karar alma süreçleri desteklenmektedir. Bu durum, danışmanların sürece olan güvenini artırmakta ve danışmanlık hizmetlerinin niteliğini geliştirmektedir. Ancak bu teknolojik araçların yalnızca yardımcı bir unsur olduğu, insan etkileşiminin temel bileşen olarak önemini koruduğu da unutulmamalıdır.

Öneriler

Araştırmanın bulguları doğrultusunda, yapay zekâ destekli kariyer danışmanlığının daha etkili ve yaygın kullanımı için çeşitli önerilerde bulunulabilir. Öncelikle, Yükseköğretim Kurulu (YÖK) tarafından lisans düzeyindeki Psikolojik Danışmanlık ve Rehberlik programlarına yapay zekâ destekli kariyer danışmanlığı modülleri entegre edilebilir. Bu modüller, simülasyon tabanlı öğrenme, vaka analizi ve dijital geri bildirim gibi deneyimsel öğrenme yöntemlerini içermelidir. Bunun yanı sıra, Millî Eğitim Bakanlığı, sahada görev yapan psikolojik danışmanlara yönelik benzer içerikte yapay zekâ destekli hizmet içi eğitim programları düzenlemelidir. Ayrıca, bu tür teknolojik uygulamaların etik, gizlilik ve güvenlik ilkeleri çerçevesinde yapılandırılması büyük önem taşımaktadır. Danışmanların bu konularda bilinçlendirilmesi, teknolojinin sorumlu ve etkili kullanımını destekleyecektir. Son olarak, farklı yapay zekâ teknolojilerinin (örneğin doğal dil işleme, öneri motorları, sanal danışanlar) çeşitli yaş gruplarındaki bireyler üzerindeki etkilerini karşılaştırmalı biçimde ele alan uzunlamasına ve karma yöntemli araştırmaların yapılması gerekmektedir.

Introduction

Career counseling is a psychological intervention that aims to help individuals cope with career choice, career development, and difficulties (Savickas, 2013). Swanson (1995) defines this process as a formal face-to-face interaction between the client and the counselor in which career-oriented or work-related issues are discussed. This definition indicates that the counselor is not only a guide who provides information but also a professional process that supports emotional, cognitive, and social change through the relationship with the client. Career counseling has become a critical service area in the developing world to increase the life satisfaction of not only young people but also individuals of all ages, to support them in coping with stress, and to enable them to make meaningful career choices (O'Brien et al., 1997; Yeşilyaprak, 2024). In this process, counselors' beliefs about how effectively they can use these skills become as important as their knowledge and skills. At this point, it can be said that the importance of self-efficacy increases. According to Bandura's (1986) social cognitive theory, self-efficacy is an individual's belief in their capacity to perform a specific behavior successfully. Self-efficacy is a fundamental variable that determines how counselors will cope with the difficulties they encounter in career counseling processes, how determined they will be throughout the process, and to what extent they will benefit their clients (Larson & Daniels, 1998; Yıldırım & İlhan, 2010).

Self-efficacy, a fundamental building block in Bandura's (1986, 1995) social cognitive theory, can express individuals' beliefs about performing a specific task. These beliefs are among the basic psychological elements that determine a person's behavior, effort, motivation level, attitude toward failure, and overall performance (Bandura, 1989, 1991, 2012). Self-efficacy refers to the counselor's confidence level in successfully conducting the counseling process, establishing effective relationships with the client, applying intervention skills, and coping with unexpected situations (Cormier & Nurius, 2003; Larson et al., 1992). It has been shown that counselors with high self-efficacy are more successful in counseling processes, establish a more effective relationship with the client, experience less anxiety, and achieve higher professional satisfaction (Al-Darmaki, 2004; Sharpley & Ridgway, 1993; Larson & Daniels, 1998). In addition, the level of self-efficacy directly affects counselors' burnout levels. Researchers such as Brouwers and Tomic (2000), Friedman (2003), and Grau et al. (2001) revealed that individuals with low self-efficacy experience high levels of occupational stress and are more prone to burnout. Watt et al. (2019) similarly stated that self-efficacy protects against burnout. Self-efficacy also affects the counselor's motivation to learn new skills and the relationship quality with the client. Heppner et al. (1998) and Munson et al. (1986) emphasized that counselors' performance is directly related to their self-efficacy. Johnson et al. (1989) and Larson et al. (1992) found that self-efficacy level is a strong variable in predicting the counselor's overall counseling performance. In line with these findings, increasing the self-efficacy levels of individuals who continue the profession of psychological counseling is an important necessity in terms of their professional development and the quality of the service provided to their clients.

Career counseling self-efficacy refers to counselors' belief in their competence in understanding and analyzing their clients' career-related problems and planning and implementing appropriate interventions (Niles & Harris-Bowlsbey, 2013). This type of self-efficacy encompasses counseling skills and many other areas of competence, such as mastering career development theories, using

measurement tools effectively, being sensitive to individual differences, and managing technology-supported systems (Chan et al., 2020; Nota et al., 2004). Swanson (1995) emphasizes that career counseling is a transfer of knowledge and an interactive process to develop psychosocial skills. In this context, a counselor with high self-efficacy beliefs can provide more effective support to clients who face problems such as career choice, career decisions, unemployment, and change of direction (Lucas, 1993; O'Brien et al., 1997). Sanders et al. (2017) and Edwin and Fisher (2023) found that school counselors with high career counseling self-efficacy intervene more actively and safely in students' career development processes. In today's world, where artificial intelligence-supported counseling tools are becoming increasingly widespread, these technologies' efficient and ethical use depends on the counselor's self-efficacy (Nota et al., 2004). Perrone et al. (2000) argue that effective career counseling is a type of competence that addresses psychosocial problems and career concerns together. Career counseling self-efficacy offers a structure based on knowledge and the ability to combine knowledge with the human dimension in the counseling process. In this context, "career development," one of the core competency areas specified by CACREP (2016), is directly related to counselor self-efficacy. As a result, it can be said that career counseling self-efficacy is a dynamic, multidimensional counseling competency that includes all components of the counseling process with individuals and is sensitive to age requirements.

Integrating artificial intelligence technologies into psychological counseling services offers innovative approaches that support the development of self-efficacy in career counseling. The literature emphasizes that artificial intelligence-based systems can provide individualized guidance to counselors by analyzing multidimensional data such as clients' interests, abilities, and values (Frey & Osborne, 2017; Hooley & Staunton, 2020). Artificial intelligence has become an important tool that complements the counselor's guidance, especially in decision-making, giving feedback, and determining alternative career paths. This situation increases the confidence of the students and the counselor in the counseling process; the objective and rapid analysis provided by technology allows the counselor to carry out the process more consciously and effectively (Öztemel & Gursev, 2020). In addition, researchers such as Picard (1997) and El Kaliouby & Picard (2005) state that efforts to reach the level of emotional cognition of artificial intelligence can bring empathic and emotional awareness to counseling processes. In this context, especially when working with individuals with high career uncertainty and anxiety, the fact that artificial intelligence systems provide strategic support to the counselor by analyzing the data about the client helps to structure intervention plans more healthily. On the other hand, with digital platforms, occupational inventories, self-assessment tools, and career planning modules developed for counselors, artificial intelligence plays a role in supporting the cognitive and decision-making competencies of counselors as well as their technical skills (Baker & Inventado, 2014; D'Mello & Graesser, 2012). This process strengthens counselors' professional knowledge and self-efficacy; it can increase the perception of dominance over the counseling process and provide psychological resilience and professional flexibility (Nota et al., 2004). Thanks to artificial intelligence's data processing and analysis capability, counselors can see the clients' potential more clearly and make their guidance more targeted; thus, career counseling services become more efficient and effective (Niles & Harris-Bowlsbey, 2013). As a result, it can be

said that career counseling practices supported by artificial intelligence directly affect counselors' self-efficacy levels, increasing the quality of the counseling process and facilitating counselors' adaptation to technological transformation.

It is seen in the literature that career counseling self-efficacy is related to various sub-dimensions, such as access to professional knowledge, counseling skills, program development and implementation, and commitment to ethical principles (Başaran, 2023). However, with the acceleration of technological developments in today's world, the digitalization of psychological counseling services has become inevitable. In particular, artificial intelligence (AI) technologies have started to be used in many areas, from creating individualized intervention strategies to analyzing client needs more accurately and supporting the professional development processes of counselors (Söner, 2024). In this context, integrating artificial intelligence technologies into guidance and psychological counseling services can potentially transform service quality and counselors' perceptions of professional competence. In career counseling, artificial intelligence has the potential to transform. These developments affect Turkey's labor sector and lead to new strategies (Özdoğan & Karacan Özdemir, 2023). However, the use of AI in the field of career counseling in Turkey is still in the development stage, and no study has been found on the use of these technologies on counselors' career counseling self-efficacy. In this regard, the current study offers a novel contribution by being one of the first attempts in the Turkish context to empirically test the impact of AI-supported vocational counseling training on counselors' perceived self-efficacy. The results of such a study are expected to provide strategic insights into how AI-based interventions can be systematically integrated into counselor education programs, thereby shaping future policies and practices**.** Especially, the few studies conducted in this field can be said to show that counseling practices carried out with AI technologies can have significant effects on counselors' cognitive competencies, technological adaptation, and self-efficacy levels (Haider et al., 2024; Suaprae et al., 2021; Su et al., 2024). On the other hand, some international studies show that digital platforms and AI-supported applications restructure counseling processes and strengthen counselors' perceptions of effectiveness (Wang & Wanberg, 2017). This suggests that programs to increase career counselors' knowledge and skills related to AI can directly affect their perceptions of professional self-efficacy. In this context, there is a need for more empirical data on both career counseling self-efficacy and AI-supported counseling practices in the Turkish context. Therefore, the problem statement of this study aimed to reveal the effect of AI-supported vocational counseling training on counselors' career counseling self-efficacy levels. For this purpose, it was determined to examine the effectiveness of the training program developed by the researcher. Ultimately, the study fills a critical research gap and opens up new discussions around the ethical, pedagogical, and professional implications of AI integration in psychological counseling. The hypotheses of the research are as follows:

H_1: There is a significant increase in the career counseling self-efficacy levels of the participants in the experimental group according to the pre-test, post-test, and follow-up test measurements.

H_2: There is no significant change in the career counseling self-efficacy levels of the participants in the control group according to the pre-test, post-test, and follow-up test measurements.

H_3: There is a significant interaction between the scores measured over time in the career counseling self-efficacy levels of the experimental and control groups.

H_4: The training program significantly increases the career counseling self-efficacy levels of the participants in the experimental group.

Method

A descriptive, cross-sectional, and methodological approach was utilized in the current study. "Ethics Committee of Istanbul Sabahattin Zaim University" approved the research (Date & Number: 16.02.2024 – 2024/01). This study was produced from the 2024-003 project supported by the BAP-400 program of the relevant university.

Research Design

In this study, which aimed to examine the effect of an AI-supported career counseling training program on counselors' career counseling self-efficacy, a quasi-experimental design with a pretest-post-test follow-up test control group was used. In the quasi-experimental design with the pretest-posttest control group, participants are randomly divided into experimental and control groups, and both groups are measured before (pretest) and after (posttest) the intervention. While a specific intervention or treatment is applied to the experimental group, no intervention is applied to the control group; in this way, the effect of the intervention is evaluated by comparing the differences between the groups (Büyüköztürk, 2024). The procedures performed in the psychoeducation program with pretest, posttest, and follow-up test control group used in this study are presented in Table 1. The procedures performed in the psychoeducation program with pretest, posttest, and follow-up test control group used in this study are presented in Table 1. The pre-test was administered on 04.11.2024, the post-test on 08.11.2024, and the follow-up test on 15.04.2025.

Table 1. *Study implementation process*

Group	Pre-test	Process	Post-test	Follow-up Test
Experimental	Career Psychological Counseling Self-efficacy scale	Artificial Intelligence Supported Career Psychological Counseling Training Program	Career Psychological Counseling Self-efficacy scale	Career Psychological Counseling Self-efficacy scale
Control	Career Psychological Counseling Self-efficacy scale	-	Career Psychological Counseling Self-efficacy scale	Career Psychological Counseling Self-efficacy scale

Working Group

The study group of this research consists of individuals determined by the convenience sampling method. The convenience sampling method is one of the least likely methods in which the researcher selects a sample from the individuals who are the easiest to access. Convenience sampling is the collection of data from individuals or groups that the researcher can reach most easily because it

is advantageous in terms of time, cost, and effort. In this method, participants are not randomly selected, but the researcher can access them to the extent they can (Creswell, 2012; Fraenkel, Wallen & Hyun, 2012; Karasar, 2021). In this study, the experimental group consisted of school counselors working in schools in the Küçükçekmece district of Istanbul, where the researcher worked. The researchers participated in the experimental study voluntarily. The demographic characteristics of the participants are presented in Table 2.

Table 2. *Demographic Characteristics of the Study Participants*

Group	Gender	*f*	Percentage (%)	Average Age
Experimental	Female	9	77.78%	28.22 years
	Male	2	22.22%	
Control	Female	6	50.00%	22.23 years
	Male	6	50.00%	

Measurement Tools

This section provides information about the Personal Information Form prepared by the researcher and the Career Counseling Self-Efficacy Scale, the validity and reliability study of which had been conducted previously.

Personal information form

This form, prepared by the researcher, includes questions to determine the demographic information of individuals in emerging adulthood.

Career Counseling Self-Efficacy Scale

This scale was developed by O'Brien et al. (1997) to determine the self-efficacy levels of counselors toward career counseling. The scale was adapted into Turkish by Büyükgöze Kavas, Şanlı, and İslam (2021). The scale has 21 items and four sub-dimensions. Within the scope of the validity study of the scale, it was found that the goodness of fit values was within the acceptable range [x^2 / sd= 318.783/179, CFI= .94, RMSEA= .011]. Within the scope of the reliability study of the scale, Cronbach's alpha coefficient was examined. These values were .86 for the therapeutic process and collaboration skills subscale, .90 for the professional evaluation and interpretation skills subscale, .84 for the competence for multicultural counseling subscale, and .67 for the current trends in the business world, ethics, and career exploration subscale; the internal consistency coefficient for the total score of the scale was .93.

Training Program Session Summaries and Daily Plan

This program is designed as a multidimensional training model that integrates theoretical knowledge with practice in career counseling. The program aims to transfer the theoretical framework to the participants and develop counseling skills through case-based practices. On the first day, the aim was to create theoretical awareness among the participants through the basic principles of career

counseling, occupational theories, and labor market information. At this stage, the participants analyzed the individual and environmental factors affecting the career development process and gained the theoretical equipment necessary to provide vocational guidance to the clients. On the second and third days, practice-based learning focused on counseling skills, measurement tools, and reporting processes. Through role-plays, inventory practices, and case analysis, participants learn how to establish an effective counseling relationship with the student. On the fourth day of the program, artificial intelligence-based career guidance tools were introduced, and technological developments were integrated into counseling processes. Career counseling simulations were conducted through AI-based client profiles on the fifth and final days. The researcher conducted the training, which lasted 5 days and 25 hours. Participants attended the training between 09:00 and 15:00 every day. Detailed information about the training program is presented below;

Table 3. *Training Program Session Summary Table*

Session	Content Summary
Day 1. Fundamentals of Career Counseling and Preparation for the Job Market	On the first day of the program, participants started with the theoretical and practical foundations of career counseling. The differences between career counseling, career guidance, and psychological counseling were explained to them. Afterward, the scope, historical development, and current importance of career counseling were emphasized. Fundamental theories such as Holland's Occupational Types Theory, Super's Career Development Theory, and Krumboltz's Social Learning Approach were discussed with case studies and group discussions. In the second part of the day, current changes in the labor market, future professions, and digital transformation issues were examined, enabling participants to provide more practical guidance to their clients about their professional future.
Day 2. Counseling Skills and Counseling with the Individual	The second day focused on the basic counseling skills required in career counseling with the individual. Basic skills such as effective listening, empathy, open-ended questioning, reflecting, and structuring emotions were explained theoretically and reinforced with practical exercises. In line with Carl Rogers' person-centered approach, the stages of building a trust-based relationship and the counseling process were examined in detail, and participants experienced their first interview through role plays, observed client-counselor interactions, and received structured feedback within the group, contributing to their skill development. The day was completed with a creative problem-solving exercise titled "How do I approach the most difficult client profile?".
Day 3. Use of Measurement Tools and Reporting	The third day was dedicated to introducing and effectively using vocational assessment tools in career counseling. The purpose, structure, and application of tests such as vocational personality types, values, career decision scales, and self-assessment inventory were explained to the participants. Each participant gained hands-on experience by administering the instruments to another participant and working together to interpret the results, transfer them to the clients, and make career plans in light of this information. Based on the data obtained, the report writing process was practiced step by step, and at the end of the day, a sample career counseling report was prepared based on a real student profile.

Day 4. Artificial Intelligence-Supported Career Counseling Applications	The fourth day focused on integrating digital transformation and technological developments in career counseling. The definition, development process, and applications of artificial intelligence, especially in career planning, were introduced. AI-supported career platforms, algorithm-based career matching tools, and data-based decision support systems were presented with examples. Participants entered real student profiles into these systems, analyzed the proposed professions, and discussed the differences between the system's recommendations and the counselor's professional intuition. Interactive discussions were held within the group on ethical dilemmas and the impact of technology on counseling processes. At the end of the day, participants' critical thinking and decision-making skills were reinforced with a debate titled "Artificial intelligence or experience?".
Day 5. Simulation of the Counseling Process with Artificial Clients	On the last training day, counseling simulations were conducted with artificial intelligence-supported scenarios. Artificial client profiles (e.g., 12th-grade students with exam anxiety, 9th-grade students with career indecision, a student who has to choose parental pressure, etc.) were modeled immediately during the class with school counselors. Each participant analyzed the identified artificial client profile in detail and was instructed on using artificial intelligence to plan a short counseling session for this client. After the planning, the simulation practice is started by assuming the role of a counselor. In this process, counseling skills and measurement tool results were used in an integrated manner. After the simulation, participants gave structured feedback on their own and each other's work. The participants evaluated the advantages and limitations of working with artificial clients and their contribution to the real counseling process.

Data Analysis

In line with the purpose of the study, the multivariate ANOVA (MANOVA) method was used to determine whether there was a significant difference in the career counseling self-efficacy of school counselors who participated in the artificial intelligence-supported training program after the program. MANOVA analysis is a technique that examines whether there is a significant difference between group mean scores obtained from the component of dependent variables (Büyüköztürk, 2021). Before the MANOVA test, the assumptions required for MANOVA must be met. The first assumption of the MANOVA test is that the number of participants in the groups should be equal or close to each other (Coakes, 2005; Tabachnick & Fidell, 2013). This assumption is met in this respect since the number of n in each pore is 12. The second assumption is that each group has more participants than the number of dependent variables (Coakes, 2005). It is seen that this study has two dependent variables (career counseling self-efficacy). The number of students in the experimental and control groups was 12. Thus, it was determined that this assumption was met. Other assumptions are univariate normality and multivariate normality. In univariate normality, observations of a variable in the sample are normally distributed. In multivariate normality, the observations in the sample are normally distributed in terms of all combinations of variables (Çokluk, Şekercioğlu, & Büyüköztürk, 2010). The Shapiro-Wilk test was applied for this study to determine whether the data met the univariate normality assumption since the sample size was less than 50. The findings obtained are given in Table 4.

Table 4. *Shapiro-Wilk Test Results of Career Psychological Counseling Scale*

		Pre-test		Post Test		Follow-up Test	
		Shapiro-Wilk		Shapiro-Wilk		Shapiro-Wilk	
		Statistic	p	Statistic	p	Statistic	p
Career Psychological Counseling Self-efficacy scale	Experimental	.904	.179	.884	.099	.868	.061
	Control	.925	.331	.958	.756	.868	.951

As seen in Table 4, the Shapiro-Wilk normality test was applied for the pretest, posttest, and follow-up test data related to Career Counseling Self-Efficacy scores. The Shapiro-Wilk test values of the experimental group were not statistically significant ($p > .05$) for the pretest (.904; $p = .179$), posttest (.884; $p = .099$), and follow-up test (.868; $p = .061$), respectively. Similarly, the control group's pre-test (.925; $p = .331$), post-test (.958; $p = .756$) and follow-up test (.868; $p = .951$) values were not significant. These findings indicate that both groups met the normality assumption at all measurement times.

The assumption of multivariate normality was tested using Mahalanobis distances. The Mahalanobis distances calculated for each participant were evaluated based on the chi-square distribution. Since this study had three measurements (k = 3), the critical value was 16.27 for df = 3 at a .001 significance level (Coakes, 2005). Since the highest Mahalanobis distance value in the data is 10.02, this value is below the critical value. Accordingly, it is accepted that the assumption of multivariate normality is met.

Results

For the MANOVA analysis to determine the effectiveness of the experimental study, the assumption of equal variance, which is also one of the assumptions, was also examined. The Box M test examined the equality of variance-covariance matrices for the Career Counseling self-efficacy scale. Since the Box M test is sensitive to multivariate normality, the p-value was accepted as $p < .001$. The findings obtained are given in Table 5.

Table 5. *Box's M results for the findings obtained from the career psychological counseling self-efficacy scale*

Career Psychological Counseling Self-efficacy scale	Box's M	40,064
	F	5,680
	df1	6
	df2	3506,717
	p	0,000

According to the Box's M test results in Table 4, the assumption of homogeneity of variance-covariance matrices was significantly violated (Box's M = 40.064, F = 5.680, df1 = 6, df2 = 3506.717, $p < .001$). This finding indicates that the variance-covariance structures between groups are unequal,

which should be considered in multivariate analyses. However, as stated in the literature (Tabachnick & Fidell, 2013), especially in cases where group sample sizes are close to each other, the effect of such violations may be limited, and it is recommended to prefer tests that are more robust to the homogeneity assumption, such as Pillai's Trace statistic. Accordingly, the findings of Pillai's Trace, Wilks' Lambda, Hotelling's Trace, and Roy's Largest Root test statistics used to evaluate multivariate effects are presented in the table below.

Table 6. *Manova test findings related to career counseling self-efficacy*

Effect		Value	F	Hypothesis df	p	Partial Eta Squared	Consent. Parameter	Observed Power
Time	Pillai's Trace	0,961	257,591	2,000	,000	,961	515,182	1,000
	Wilks' Lambda	0,039	257,591	2,000	,000	,961	515,182	1,000
	Hotelling's Trace	24,532	257,591	2,000	,000	,961	515,182	1,000
	Roy's Largest Root	24,532	257,591	2,000	,000	,961	515,182	1,000
Time * Group (Pre-test-Post test-Followup test)	Pillai's Trace	0,953	214,507	2,000	,000	,953	429,014	1,000
	Wilks' Lambda	0,047	214,507	2,000	,000	,953	429,014	1,000
	Hotelling's Trace	20,429	214,507	2,000	,000	,953	429,014	1,000
	Roy's Largest Root	20,429	214,507	2,000	,000	,953	429,014	1,000

When Table 6 is examined, according to the results of multivariate analysis of variance (MANOVA), the main effect of the time variable was found statistically significant (Pillai's Trace = .961, $F_{(2, 21)} = 257.591$, $p < .001$, $\eta^2 = .961$). This result reveals that Career Counseling Self-Efficacy levels measured at different times (pretest, posttest, and follow-up test) differed significantly. In addition, the interaction between time and group (experimental and control) was also significant (Pillai's Trace = .953, $F_{(2, 21)} = 214.507$, $p < .001$, $\eta^2 = .953$). This finding shows that the changes in the self-efficacy levels of the experimental and control groups differed from each other according to the measurement times. The results of all multivariate test statistics (Wilks' Lambda, Hotelling's Trace, Roy's Largest Root) also show significance in the same direction, and the high eta squared values (.961 and .953) indicate that the effect sizes are pretty high and the intervention has a strong effect on Career Counseling Self-Efficacy levels. Accordingly, it can be said that the training program significantly and strongly increased the self-efficacy levels in the experimental group.

Analyses of variance for the measurements of the experimental and control groups over time were performed with repeated measures of ANOVA to evaluate the between-group and time effects together. This statistical analysis tests the main effect of time and the interaction of time and group. The results are presented in detail in Table 7.

Table 7. *Repeated measures analysis of variance findings for career counseling self-efficacy*

Source		Type III Sum of Squares	df	Mean Square	F	pp	Partial Eta Squared	Consent. Parameter	Observed Power
Time	Sphericity Assumed	2490,250	2	1245,125	255,146	,000	0,921	510,292	1,000
	Greenhouse-Geisser	2490,250	1,686	1476,685	255,146	,000	0,921	430,273	1,000
	Huynh-Feldt	2490,250	1,894	1314,841	255,146	,000	0,921	483,235	1,000
	Lower-bound	2490,250	1,000	2490,250	255,146	,000	0,921	255,146	1,000
Time * Group (Pre-test-Post test-Follow up test)	Sphericity Assumed	2201,694	2	1100,847	225,581	,000	0,911	451,162	1,000
	Greenhouse-Geisser	2201,694	1,686	1305,575	225,581	,000	0,911	380,415	1,000
	Huynh-Feldt	2201,694	1,894	1162,485	225,581	,000	0,911	427,241	1,000
	Lower-bound	2201,694	1,000	2201,694	225,581	,000	0,911	225,581	1,000
Error(Time)	Sphericity Assumed	214,722	44	4,880					
	Greenhouse-Geisser	214,722	37,100	5,788					
	Huynh-Feldt	214,722	41,667	5,153					
	Lower-bound	214,722	22,000	9,760					

According to Table 7, the main effect of the time variable was found statistically significant in the repeated measures analysis of variance on career counseling self-efficacy levels ($F_{(2, 44)} = 255.146$, $p < .001$, $\eta^2 = .921$). This result shows significant differences between the pre-test, post-test, and follow-up measurements. In addition, the interaction between time and group (experimental-control) was also significant ($F_{(2, 44)} = 225.581$, $p < .001$, $\eta^2 = .911$). This finding reveals that the experimental and control groups showed different changes in self-efficacy levels over time. The high partial eta squared values obtained for both effects indicate that the intervention had a strong effect. Since the sphericity assumption was met, the standard F values without using correction coefficients in the analysis were accepted as valid. These findings support that the intervention program provided a significant and effective increase in the self-efficacy level of the experimental group over time.

Linear and quadratic contrast analyses were conducted to determine the trend of the changes observed over time. These analyses were structured to examine the effect of time and its interaction with the group. The findings are presented in detail in Table 8.

Table 8. *Linear and contrast Analyses of career counseling self-efficacy*

Source		Type III Sum of Squares	df	Mean Square	F	p	Partial Eta Squared	Consent. Parameter	Observed Power
Time	Linear	1692,187	1	1692,187	242,331	,000	0,917	242,331	1,000
	Quadratic	798,063	1	798,063	287,368	,000	0,929	287,368	1,000
Time * Group (Pre-test-Post test-Follow up test)	Linear	1621,688	1	1621,688	232,235	,000	0,913	232,235	1,000
	Quadratic	580,007	1	580,007	208,850	,000	0,905	208,850	1,000
Error (Time)	Linear	153,625	22	6,983					
	Quadratic	61,097	22	2,777					

According to the data in Table 8, both linear and quadratic components were significant in line with the trend analyses obtained for the time variable. The linear effect of time ($F_{(1, 22)} = 242.331$, $p < .001$, $\eta^2 = .917$) and the curvilinear effect ($F_{(1, 22)} = 287.368$, $p < .001$, $\eta^2 = .929$) were significant with quite high effect sizes. These findings suggest that there is both a continuous upward trend and a more complex pattern of change (e.g., an increase followed by a plateau or a decrease) in participants' self-efficacy levels over time. Similarly, the linear ($F_{(1, 22)} = 232.235$, $p < .001$, $\eta^2 = .913$) and curvilinear ($F_{(1, 22)} = 208.850$, $p < .001$, $\eta^2 = .905$) components of the interaction between time and group were significant. This reveals that the patterns of change in the self-efficacy levels of the experimental and control groups differed over time and that the effect of the intervention was not limited to a general increase but varied over time. The high effect sizes and full observed power (observed power = 1.000) indicate that the program's effect is both strong and statistically reliable.

Finally, parametric estimation values were analyzed in more detail to examine the differences between the self-efficacy levels of the experimental and control groups according to the measurement times. This analysis aims to reveal the statistical significance and effect sizes of the differences between the groups. The findings are presented in Table 9.

Table 9. *Parameter estimates of career counseling self-efficacy*

Dependent Variable		B	Std. Error	t	*p*	95% Confidence Interval	
						Lower Bound	Upper Bound
Pre-Test	Intercept	63,417	2,258	28,079	0,000	58,733	68,100
	Experimental	0,417	3,194	0,130	0,897	-6,207	7,041
	Control	0					
Post-Test	Intercept	64,583	1,669	38,691	0,000	61,122	68,045
	Experimental	24,083	2,361	10,202	0,000	19,188	28,979
	Control	0					
Follow up Test	Intercept	63,667	1,864	34,155	0,000	59,801	67,533
	Experimental	23,667	2,636	8,978	0,000	18,200	29,134
	Control	0					

According to the data in Table 9, the estimated means of the experimental and control groups for the pretest, posttest, and follow-up test measurements were compared, and the statistical significance of the differences between the groups was examined. There was no significant difference between the experimental and control groups in the pretest measurement (B = 0.417, p = .897), which indicates that the initial levels of the groups were similar. However, significant differences were observed in favor of the experimental group in the post-test (B = 24.083, p < .001) and follow-up test (B = 23.667, p < .001). These findings reveal that the career counseling self-efficacy levels of the experimental group were significantly higher than the control group in the post-intervention and follow-up phases. The positive confidence intervals and significance levels below .001 support that the effect of the intervention is strong and statistically reliable.

A line graph was created for the estimated marginal means to show the change in the career counseling self-efficacy levels of the experimental and control groups comparatively over time. This graph visually reveals how the differences between the groups are shaped over time. Related findings are presented in Figure 1.

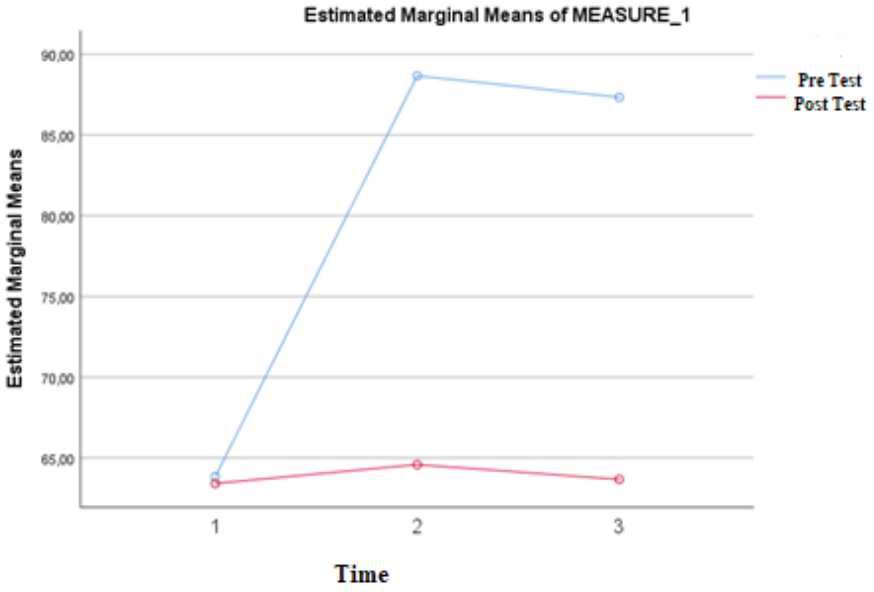

Figure 1. Career counseling self-efficacy trends over time.

(***Note:*** Blue Line: Experimental Group, Red Line: Control Group)

Figure 1 shows the estimated marginal means of the experimental and control groups for the three measurement times (pretest, posttest, follow-up test) are presented comparatively. In the experimental group, represented by the light blue line, there is a significant increase from the pretest

to the posttest, which is largely maintained in the follow-up test. On the other hand, in the control group represented by the red line, no significant change was observed in self-efficacy levels at all three-time points. This finding shows that the intervention applied to the experimental group effectively increased self-efficacy levels and maintained this effect in the follow-up process. The graphical trend visually supports the results of the previous statistical analyses (MANOVA, contrast, and parameter estimates).

Discussion

The findings of this study reveal that AI-supported career counseling training significantly and strongly increased counselors' career counseling self-efficacy levels. This finding is consistent with previous studies indicating that counselor self-efficacy directly affects the effectiveness of the counseling process (Creighton, 2025; Greason & Cashwell, 2009; Hwang & Wu, 2025; Larson & Daniels, 1998; Lent et al., 2003). The MANOVA results obtained in the study show that the time (pretest-posttest-follow-up test) and group effect (experimental-control) are highly significant, and the effect sizes are also very large. In particular, the persistence of significant differences between the post-test and follow-up test in favor of the experimental group indicates the permanence of artificial intelligence-supported education. This finding supports discussions about the long-term effects of short-term counseling skills training (Munson et al., 1986; Thoren et al., 2025). Since counseling self-efficacy includes the individual's beliefs that they are competent in their professional role, this development can directly affect the quality of the counseling process. Artificial intelligence-supported tools in the training process facilitated counselors' access to information, increased their application skills with case-based feedback, and improved their self-evaluation skills regarding the counseling process. In this respect, the research aligns with the social cognitive theory (Bandura, 1986, 1997), which suggests that self-efficacy is a structure shaped by environmental, cognitive, and affective interactions.

Integrating artificial intelligence into counseling can create significant changes in the role perceptions of counselors and the way they approach counseling processes. The finding that artificial intelligence-supported learning and application systems used in the research contribute to the professional competencies of individuals overlaps with the findings of Hooley et al. (2020) and Öztemel and Gursev (2020) on the data analysis and prediction capacity of artificial intelligence in counseling processes. In particular, using technologies such as big data and machine learning in career counseling allows counselors to make faster and multidimensional analyses of the client, making the counseling process more targeted and effective. In this context, the study showed that AI-supported counseling applications have a significant potential to increase counseling self-efficacy. However, these results should not ignore that technology is only a tool and that human interaction in counseling is still a fundamental element (Fulmer, 2019; Kaplan, Tarvydas & Gladding, 2014).

The findings show that counselors' adoption of artificial intelligence-supported applications increases their self-efficacy and improves the quality of client services. This increases individuals' trust in counseling processes and enables psychological services to reach wider audiences. In

particular, the integration of artificial intelligence with tools such as decision support systems, natural language processing, and recommendation engines can enable counselors to make more informed and objective professional decisions (Sodhi et al., 2016; Salmi, 2024; Romero & Subardjo, 2024). In addition, the rapid feedback and individualized recommendations provided by artificial intelligence enable counselors to develop approaches suitable for individual differences. This facilitates the direct experience of "success experience," which is one of the main components of self-efficacy beliefs. Therefore, the model presented in this study not only contributes to the professional development of counselors but also enables counseling processes to be structured effectively and sustainably.

Finally, the findings of this study show that the use of artificial intelligence in the field of career counseling can lead to significant transformations not only for individual counselors but also at the system level. In the literature, it has long been emphasized that counselors' self-efficacy determines the relationship with the client and the success of the counseling process (Bandura, 1997; Betz, 1992; Jeong et al., Lent et al., 2003). The study's findings show that counselors with high self-efficacy levels are more effective, flexible, and motivated, which increases the efficiency of career counseling. In particular, it was determined that artificial intelligence's personalized scenarios and feedback significantly contributed to the development of school counselors' professional skills in the practice context. In this respect, systematically integrating technological tools into educational processes may become a fundamental component of counselor education. Thus, sustainable professional development can be achieved not only at the individual level but also at the organizational and system level. This situation also necessitates structuring artificial intelligence-supported career counseling practices in the context of ethics, security, and confidentiality.

Conclusion

The findings of this study reveal that artificial intelligence-supported career counseling training significantly, permanently, and strongly increased counselors' self-efficacy levels. The knowledge-based, personalized, and interactive counseling experience offered by artificial intelligence strengthened counselors' belief in their competencies and enabled them to take a more active role in counseling processes. In this context, the strategic inclusion of technological innovations and artificial intelligence-based tools in training processes to develop counselors' self-efficacy for career counseling stands out as an effective method that increases individual professional development and the quality of the service provided.

Limitations

This study conceptualized artificial intelligence primarily as a set of digital tools that support decision-making, feedback, and learning processes, without fully addressing its complex sociotechnical dimensions. The functional and educational uses of AI were emphasized, while deeper philosophical and interdisciplinary perspectives on AI, such as autonomy, bias, and transparency, were not explored. This narrow operationalization may limit the generalizability of the findings to broader, real-world AI counseling systems where ethical and contextual variables play a larger role. Additionally, the study did not include qualitative data that could have provided richer insight into

how counselors internalize and interpret AI-supported interventions. Future research should adopt a more holistic conceptual framework for AI that integrates cognitive, ethical, and cultural factors.

Recommendations

In line with the study's findings, artificial intelligence-based career counseling modules can be meaningfully integrated into undergraduate psychological counseling programs by the Council of Higher Education (YÖK) and in-service training initiatives by the Ministry of National Education (MoNE). These modules should not only introduce AI-supported systems, but also actively engage counselor candidates in experiential learning environments where simulation-based practices, case-based feedback, and automated client interaction analyses are included. Such practical integration will likely enhance counselors' self-efficacy, as supported by the study's evidence, while also fostering their technological competence and adaptability in rapidly evolving professional landscapes. For the research domain, future studies should aim to explore the differential effects of various AI applications—such as natural language processing tools, recommendation engines, or virtual agents—across diverse client demographics, including adolescents, adults, and special needs populations. Investigating AI-counselor interactions in culturally diverse or economically disadvantaged settings could provide important insights into the contextual scalability and ethical challenges of AI-driven counseling systems. Furthermore, longitudinal mixed-method studies should be conducted to assess the sustained impact of AI-integrated interventions on counseling outcomes, counselor development, and client satisfaction. Collaborations between universities, technology developers, and professional counseling associations can catalyze the development of evidence-based AI counseling standards, thereby ensuring that innovation in this field remains both ethically grounded and practice-relevant.

Etik Kurul İzni: Bu araştırma, İstanbul Sabahattin Zaim Üniversitesi Rektörlüğü Etik Kurul Başkanlığının 16.02.2024 tarihli ve E-20292139-050.04-240.001.0822 sayılı onayı doğrultusunda gerçekleştirilmiştir.

References

Al-Darmaki, F. R. (2004). Counselor training, anxiety, and counseling self-efficacy: Implications for training psychology students from the United Arab Emirates University. *Social Behavior and Personality: An İnternational Journal, 32*(5), 429-439. https://doi.org/10.2224/sbp.2004.32.5.429

Baker, R.S., & Inventado, P.S. (2014). Educational data mining and learning analytics. In J. A. Larusson & B. White (Eds*.), Learning analytics: From research to practice* (pp. 61-75). Springer.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175–1184. https://doi.org/10.1037/0003-066X.44.9.1175

Bandura, A. (1991). Human agency: The rhetoric and the reality. *American Psychologist, 46,* 157-162. https://doi.org/10.1037/0003-066X.46.2.157

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-efficacy in changing societies.* Cambridge University Press.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman and Company

Bandura, A. (2012). On the functional properties of perceived self-efficacy revisited. *Journal Of Management, 38*(1), 9-44. https://doi.org/10.1177/014.920.6311410606

Başaran, İ. (2023). *Okul psikolojik danışmanları için kariyer psikolojik danışmanlığı öz-yeterlik ölçeği'nin geliştirilmesi.* (Yayınlanmamış yüksek lisans tezi). Dokuz Eylül Üniversitesi, İzmir.

Betz, N. E. (1992). Counseling uses of career self-efficacy theory. *The Career Development Quarterly, 41*(1), 22-26. https://doi.org/10.1002/j.2161-0045.1992.tb00352.x

Brouwers, A., & Tomic, W. (2000). A Longitudinal Study of Teacher Burnout and Perceived Self-Efficacy in Classroom Management. *Teaching and Teacher Education, 16*, 239-253. http://dx.doi.org/10.1016/S0742-051X(99)00057-8

Büyükgöze-Kavas, A., Şanlı, E., & İslam, Ü. Y. (2021). Kariyer Psikolojik Danışmanlığı Öz-Yeterlik Ölçeği Türkçe formu: Geçerlik ve güvenirlik çalışması. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi* (58), 105–130. https://doi.org/10.21764/maeuefd.790078

Büyüköztürk, Ş. (2021). *Sosyal bilimler için veri analizi el kitabı: İstatistik, araştırma deseni, SPSS uygulamaları ve yorum* (28. baskı). Pegem Akademi.

Büyüköztürk, Ş. (2024). *Deneysel desenler: Ön test-son test kontrol Grubu, desen ve veri analizi*. (10. Basım). Pegem Akademi.

Chan, E.S.S., Ho, S.K., Ip, F.F.L., & Wong, M.W.Y. (2020). Self-Efficacy, Work Engagement, and Job Satisfaction Among Teaching Assistants in Hong Kong's Inclusive Education. *Sage Open,* 1-11. https://doi.org/10.1177/215.824.4020941008

Coakes, S. J. (2005). *SPSS: Analysis without anguish using SPSS version 12.0 for Windows*. John Wiley & Sons

Cormier, S., & Nurious, P. S. (2003). *Interviewing and change strategies for helpers: Fundamental skills and cognitive behavioral interventions* (5th ed.). Thomson-Brooks/Cole.

*Council for Accreditation of Counseling and Related Educational Programs (*CACREP). (2016). 2016 CACREP standards. Erişim adresi: https://www.cacrep.org

Creighton, L., Brown Wilson, C., Anderson, T., Hamilton, C., Curtis, G., Slade, C., & Mitchell, G. (2025). Promoting self-efficacy of nursing students in academic integrity through a digital serious game: a pre/post-test study. *Nursing Reports, 15*(45), 1-11. https://doi.org/10.3390/nursrep15020045

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Pearson Education.

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2010). *Sosyal bilimler için çok değişkenli istatistik: SPSS ve LISREL uygulamaları*. Pegem Akademi.

D'Mello, S., & Graesser, A. (2012). Dynamics of affective states during complex learning. *Learning and Instruction, 22*(2), 145-157. https://doi.org/10.1016/j.learninstruc.2011.10.001

Edwin, M., & Fisher, J. (2023). School counselors' experience and self-efficacy in providing career counseling to high-ability visual artists. *Professional School Counseling, 27*(1), 1-11. https://doi.org/10.1177/2156759X231165495

El Kaliouby, R., & Picard, R. W. (2005). *Affective computing and intelligent interaction*. In Proceedings of the 1st International Conference on Affective Computing and Intelligent Interaction (pp. 981-995). Springer-Verlag.

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate education research* (8th ed.). McGraw-Hill.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerization? *Technological Forecasting and Social Change, 114*, 254–280. https://doi.org/10.1016/j.techfore.2016.08.019

Friedman, I. A. (2003). Self-efficacy and burnout in teaching: the importance of interpersonal-relations efficacy. *Social Psychology of Education, 6*(3), 191-215. https://doi.org/10.1023/A:102.472.3124467

Fulmer, R. (2019). Artificial intelligence and counseling: Four levels of implementation. *Theory & Psychology, 29*(6), 807–819. https://doi.org/10.1177/095.935.4319853045

Grau, R., Salanova, M., & Peirò, J. M. (2001). Moderator effects of self-efficacy on occupational stress. *Psychology in Spain, 5*(1), 63–74. https://psycnet.apa.org/record/2003-04139-007

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

Haider, Z., Zummer, A., Waheed, A., & Abuzar, M. (2024). Study how AI can enhance cognitive functions, such as memory or problem-solving, and the psychological effects of these enhancements. *Bulletin of Business and Economics, 13*(3), 256-263. https://doi.org/10.61506/01.00485

Heppner, M. J., Multon, K. D., Gysbers, N. C., Ellis, C. A., & Zook, C. E. (1998). The relationship of trainee self-efficacy to the process and outcome of career counseling. *Journal of Counseling Psychology, 45*(4), 393-402. https://doi.org/10.1037/0022-0167.45.4.393

Hooley, T., & Staunton, T. (2020). The role of digital technology in career development. P. J. Robertson, T. Hooley, & P. McCash, (Eds.). In *The oxford handbook of career development* (pp. 297–312). https://doi.org/10.1093/oxfordhb/978.019.0069704.013.22

Hwang, Y. J., & Wu, Y. (2025). The influence of generative artificial intelligence on creative cognition of design students: a chain mediation model of self-efficacy and anxiety. *Frontiers in Psychology, 15,* 1-13. https://doi.org/10.3389/fpsyg.2024.145.5015

Jeong, D., Shin, S., & Jeong, J. (2025, April). Conversation Progress Guide: UI system for enhancing self-efficacy in conversational AI. In *Proceedings of the CHI Conference on Human Factors in Computing Systems* (CHI 2025), Yokohama, Japan.

Johnson, E., Baker, S. B., Kopala, M., Kiselica, M. S., & Thompson, E. C. (1989). Counseling self-efficacy and counseling competence in prepracticum training. *Counselor Educational & Supervision, 28*(3), 205-218. https://doi.org/10.1002/j.1556-6978.1989.tb01109.x

Kaplan, D.M., Tarvydas, V.M., & Gladding, S.T. (2014). 20/20: A vision for the future of counseling: The new consensus definition of counseling. *Journal of Counseling & Development, 92*(3), 366–372. https://doi.org/10.1002/j.1556– 6676.2014.00164.x

Karasar, N. (2021). *Bilimsel araştırma yöntemi: Kavramlar, ilkeler, teknikler* (36. baskı). Nobel Yayıncılık.

Larson, L. M., & Daniels, J. A. (1998). Review of the Counseling Self-Efficacy Literature. *The Counseling Psychologist, 26(*2), 179–218. https://doi.org/10.1177/001.100.0098262001

Larson, L. M., Suzuki, L. A., Gillespie, K. N., Potenza, M. T., Bechtel, M. A., & Toulouse, A. L. (1992). Development and validation of the counseling self-estimate inventory. *Journal of Counseling Psychology, 39*(1), 105–120. https://doi.org/10.1037/0022-0167.39.1.105

Lent, R. W., Hill, C. E., & Hoffman, M. A. (2003). Development and validation of the Counselor Activity Self-Efficacy Scales. *Journal of Counseling Psychology, 50*(1), 97–108. https://doi.org/10.1037/0022-0167.50.1.97

Lucas, M. S. (1993). Personal aspects of career counseling: Three examples. *The Career Development Quarterly, 42,* 161 – 166. https://doi.org/10.1002/j.2161-0045.1993.tb00430.x

Munson, W. W., Stadulis, R. E. & Munson, D. G. (1986). Enhancing competence and self-efficacy of potential therapeutic recreators in decision-making counseling. *Thereapeutic Recreation Journal, 20*(4), 85-93. https://www.js.sagamorepub.com/index.php/trj/article/view/4331

Niles, S. G., & Harris-Bowlsbey, J. (2013). *21. yüzyılda kariyer gelişimi müdahaleleri* (4. baskı). (F. Korkut Owen, Çev.). Nobel Akademik Yayıncılık.

Nota, L., Lent, R. W., & Soresi, S. (2004). Relation of type and amount of training to career counseling self – efficacy in Italy. *Career Development Quarterly, 52*,194-201. https://doi.org/10.1002/j.2161-0045.2004.tb00641.x

O'Brien, K. M., Heppner, M. J., Flores, L. Y., & Bikos, L. H. (1997). The Career Counseling Self-Efficiency Scale: Instrument development and training applications. *Journal of Counseling psychology, 44*(1), 20-31. https://doi.org/10.1037/0022-0167.44.1.20

Özdoğan, H.K. ve Karacan Özdemir, N. (2023). 21. Yüzyılda kariyer psikolojik danışmanlığı ve yapay zeka. *Buca Eğitim Fakültesi Dergisi,* (57), 2127-2152. https://doi.org/10.53444/deubefd.1326692

Öztemel, E. & Gürsev, S. (2020). A literature review on Industry 4.0 and beyond. *Journal Of Intelligent Manufacturing, 31*(1), 127-182. https://doi.org/10.1007/s10845.018.1433-8,

Perrone, K. M., Perrone, P. A., Chan, F., & Thomas, K. R. (2000). Assessing efficacy and importance of career counseling competencies. *The Career Development Quarterly, 48*(3), 212-225. http://dx.doi.org/10.1002/j.2161-0045.2000.tb00287.x

Picard, R. W. (1997). *Affective computing.* MIT Press.

Romero, C. B., & Subardjo, R. Y. S. (2024). AI-enhanced health counseling: A futuristic approach to holistic well-being. *Bincang Sains dan Teknologi, 3*(3). https://doi.org/10.56741/bst.v3i03.631

Salmi, S. (2024). *From words to actions*. [Doctoral dissertation]. Vrıje Universirejt Amsterdam.

Sanders, C., Welfare, L. E., & Culver, S. (2017). Career counseling in middle schools: A study of school counselor self-efficacy. *The Professional Counselor, 7*(3), 238– 250. https://doi.org/10.15241/cs.7.3.238

Savickas, M.L. (2013). Career construction theory and practice. R. W. Lent, & S. D. Brown (Eds.), In *Career development and counseling: Putting theory and Research to work* (2.ed.), pp. 144-180). John Wiley.

Sharpley, C. F., & Ridgway, I. R. (1993). An evaluation of the effectiveness of self-efficacy as a predictor of trainees' counselling skills performance. *British Journal of Guidance & Counselling, 21*(1), 73-81. https://doi.org/10.1080/030.698.89308253643

Sodhi, J. S., Dutta, M., & Aggarwal, N. (2016). Efficacy of artificial neural network based decision support system for career counseling. *Indian Journal of Science and Technology, 9*(32), 1-9. https://doi.org/10.17485/IJST/2016/V9I32/100738

Söner, O. (2024). Okul rehberlik ve psikolojik danışma hizmetlerinde yapay zekâ kullanımı: Teknolojik ilerleme. O. Söner & M. Y. Erdoğdu (Eds.), *Okullarda rehberlik ve psikolojik danışmanlık: Eğitime yön verici güç* kitabı içinde (ss. 361–374). Vizetek Yayıncılık.

Swanson, J. L. (1995). Contemporary topics in vocational psychology. W.B. Walsh, & M.L. Savickas (Eds.), In Handbook of vocational psychology: Theory, research, and practice (pp. 217–259). Routledge.

Suaprae, P., Nilsook, P., & Wannapiroon, P. (2021, July). *System framework of intelligent consulting systems with intellectual technology*. In International Conference on Computer Communications. https://doi.org/10.1145/3479.162.3479167

Su, S.W., Hung, C.H., Chen, L.X., & Yuan, S.M. (2024). Development of an AI-based system to enhance school counseling models for Asian elementary students with emotional disorders. *IEEE Access, 12*, 121-136. https://doi.org/10.1109/access.2024.348.3456

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson Education.

Thorén, A., Lindqvist, K., Pertoft Nemirovski, J., & Mechler, J. (2025). Short-term mentalization-based therapy for common childhood mental disorders – a pilot quasi-randomised controlled trial. *Clinical Child Psychology and Psychiatry, 30*(2), 436-451. https://doi.org/10.1177/135.910.45251316619

Wang, M., & Wanberg, C. R. (2017). 100 years of applied psychology research on individual careers: From career management to retirement. *Journal of Applied Psychology, 102*(3), 546–563. https://doi.org/10.1037/apl0000143

Watt, H.M.G., Ehrich, J., Stewart, S.E., Snell, T., Bucich, M., Jacobs, N., Furlonger, B., & English, D. (2019). Development of the psychologist and counsellor self-efficacy scale. *Higher Education, Skills and Work-Based Learning, 9*(3), 485-509. https://doi.org/10.1108/HESWBL-07-2018-0069

Yeşilyaprak, B. (Ed.). (2024). *Mesleki rehberlik ve kariyer danışmanlığı: Kuramdan uygulamaya* (16. baskı). Pegem Akademi

Yıldırım, F. ve İlhan, İ. Ö. (2010). Genel öz – yeterlik ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. *Türk Psikiyatri Dergisi, 21*(4), 301 – 308. https://www.turkpsikiyatri.com/PDF/C21S4/301-308.pdf