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ON THE CONCEPTUALIZATION OF CAREER SELF-EFFICACY: A BIBLIOMETRIC ANALYSIS WITH VOSVIEWER

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Abstract

Career self-efficacy is defined as an individuals' belief in their capability to successfully perform the nevessary tasks, such as goal settings, to manage and progress throughout their career. Bibliometric analysis is an analytical method used to examine and analyze the bibliographic information of a large number of scientific studies. In addition to revealing the breaking points in the development of a particular field, it enables the identification of recent trends in that field. This research aims to determine the core and secondary themes utilized in academic studies concerning career self-efficacy. In order to do this, a bibliometric analysis was carried out with the Vosviewer program based on the article data in the Web of Science database. The network relationship of the concept with other possible concepts was determined and clustered, and the infrastructure of the hypothetical model was constructed with visualization. As a result of the analysis, seven basic clusters were identified as word- or concept-based representatives of career self-efficacy. These clusters are career self-efficacy, career development, career decision, career exploration, adolescents, career success, and social support.

Keywords: Career Self-Efficacy, Bibliometric Analysis, Co-Occurance

JEL Codes: M10, M12

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INTRODUCTION

Career self-efficacy has appeared as a micro-level concept of interest in the field of organizational behavior in recent years in connection with individuals' career progression processes. Bandura (1977, 1993, 2012), who addressed the concept of self-efficacy with its different dimensions within the scope of the Social Cognitive Theory (SCT) he developed, defined self-efficacy as "an individual's belief in his/her capacity to organize and execute the necessary methods to be successful". Social Cognitive Theory posits that human activity is the result of the interaction among environmental (external) factors, individual (internal) factors, and past and present behaviors (Bandura, 1986). According to SCT, individuals are actors with the potential to influence important points in their lives, and they try to change unwanted aspects while adapting to the aspects they like in their environment. Therefore, four main factors determine the self-efficacy. The sources from which self-efficacy is constructed, according to Bandura (1977), include performance accomplishments, modeling (vicarious learning), verbal persuasion, and the interpretation of physiological and emotional arousal. When SCT is considered in the context of organizational behavior, it can be stated that competence beliefs, environment and behavior (organizational commitment, organizational dedication, organizational climate, emotional exhaustion, etc.) components are in interaction (Bandura, 2012).

Career self-efficacy is mainly used to describe individuals' self-focused perceptions regarding their career journeys within the scope of Social Cognitive Career Theory. SCCT comes from Bandura's SCT and the concept of self-efficacy. This career theory offers an encompassing explanation of how an individual's career evolves through the reciprocal influence of diverse elements (Lent et al., 1994; Lent & Brown, 2006, 2008; Lent & Hackett, 1987). SCCT clarifies how the interaction of individual, behavioral, and environmental elements operates within the career domain. Reflecting Bandura's original model, SCCT establishes a triadic reciprocal causation model specifically for career development. Three basic concepts of the model are self-efficacy, outcome expectations and individual goals (Buthelezi et al., 2010). These concepts answer the questions related to one's ability to do something, results of the prospective success and the power of the will in question. The theory provides a model detailing how individual cognitive variables, observable behaviors, and surrounding environmental elements influence vocational development. In this theory, the fundamental assumptions of SCT have been modified and applied to the area of careers. Lent et al. (1994) summarize the main questions addressed within the scope of the theory as follows: How are career interests developed? How do individuals make career choices? How do individuals perform in their careers? Why are individuals satisfied with their occupation and education choices? How do individuals manage their careers?

SCCT claims that self-efficacy and outcome expectations come from personal experiences of success and failure, observing the role models, persuasion by the important ones around and emotional states of the person. These factors greatly affect an individual's interests (Lent et al., 2017). Consequently, individuals' career choices and success performance are affected (Lent et al., 2017; Lent & Hackett, 1987). Essentially, SCCT provides a more systematic account of how key cognitive, personal, and environmental factors interact to shape an individual's career path. At this point, it is possible to describe career self-efficacy as one of the determining factors in an individual's career journey.

It has been determined that many measurement tools have been developed in the literature to be used in measuring self-efficacy in different fields (Bandura and Bandura, 2006; Loeb et al., 2016; Lucas and Wanberg, 1997; Rigotti et al., 2008; Schwarzer, 1995; Schyns & Collani, 2002; Wulff & Steitz, 1996). However, the increasing number of studies examining self-efficacy in terms of different variables in recent years shows that the explanations regarding the subject have evolved in different directions. In this study, in order to present the scope of the concept of career self-efficacy, it is aimed to determine the outlines of the concept and other related sub-concepts based on the keywords and concepts in academic articles written between 1985-2025. For this purpose, bibliometric analysis of the article data in the Web of Science database was performed using the Vosviewer program, and it was aimed to determine the network relationship of the concept with other related concepts. The reason why only the Web of Science database was preferred in obtaining the data in the study is that the first academic studies on career self-efficacy and the studies of leading authors on this subject are included in this database. Thus, it is assumed that an in-depth knowledge will be reached on this subject. The current study aims to determine with which variables career self-efficacy, which has been an important research topic in recent years, is addressed in the field of organizational behavior, and to explain how the knowledge produced regarding the concept has developed over the process. Thus, it is thought that the study will contribute to research to be carried out on individuals' career expectations and progress.

CONCEPTUAL FRAMEWORK

As mentioned above, the concept of career self-efficacy is a core element of Bandura's (1986) SCT. SCCT developed by Lent et. al. (2017) is also based on Bandura's (1986) general SCT. Similar to previous career theories, SCCT includes the concepts such as interests, abilities, values, environmental factors. These were stated to affect career development (Lent et al., 1994). The theory consistently explains cognitive and motivational processes and has enabled the examination of many psychosocial function areas such as academic performance, health behavior, and organizational development. SCCT, a relatively new

framework, seeks to illuminate three interconnected facets of career develoment (Lent et al., 2002). These interrelated aspects cover: the formation of foundational academic and career interests, the actual process of educational and career decision-making, and the ultimate achievement of academic and career success. Overall, these three interconnected facets of the SCCT, the development of career interests, the occupational choice process, and the sustainment of career performance and persistence, are delineated as separate models by Lent and colleagues (1994, 2017).

In the context of continued SCCT evolution, a model was developed by Lent and Brown (2006, 2008) to address well-being and satisfaction in academic and work domains. Furthermore, Lent et al. (2017) later introduced a separate model highlighting the comprehensive, life-long process of career self-management.

In this context, it is possible to say that SCCT explains the methods and techniques of career interventions. These can be stated as expanding choice options, coping with obstacles, supporting, setting goals, self-regulation, facilitating job performance, and promoting job satisfaction (Lent et al., 2017). SCCT examines the effects of individual, social and economic factors regarding the career journey (Lent et al., 2002). Thus, it can be stated that the theory tries to present a holistic structure that accomplish the shortcomings of the previous approach that examines individual, social and economic factors seperately. Within the expressed holistic framework, individuals' beliefs in setting goals and being successful regarding their own career journeys emerge as career self-efficacy.

Initially, the concept, which focused on adolescents' career choices in the field of educational sciences and was addressed in the context of career decision-making, has gradually been considered as career self-efficacy based on adults' self-assessment and attitudes regarding their career journeys. Accordingly, the number of studies examining career self-efficacy appears to be increasing (Altıntaş & Altıntaş, 2023; Andoh et al., 2023; Arghode et al., 2021; Arslan, 2021; Bachrach et al., 2023; Ballout, 2009; Chughtai, 2018; Eyitmiş et al., 2020; Hagan & Olivier, 2022; Hofacker, 2014; Karadirek, 2023; Kumar Pradhan et al., 2021; Lent et al., 2017; Momsen & Carlson, 2017; Özkoç & Kendir, 2018; Papyrina et al., 2021; Rottinghaus et al., 2003; Stajkovic & Luthans, 1998; Tresi & Mihelič, 2023; Üngüren & Tekin, 2022; Wang et al., 2023; Wright et al., 2014; Yeloğlu & Doğan, 2021). Therefore, the notion of career self-efficacy has successfully been incorporated into the discourse and empirical studies prevalent in the management science literature concerning career development.

Career self-efficacy is not expressed as career self-efficacy in all of the mentioned studies. However, these preceding studies can thus be effectively assessed and interpreted through the lens of the established career self-efficacy literature as the self-efficacy phenomenon is addressed in the context of work life and

individuals' perceptions and attitudes regarding their career journey. At this point, it can be stated that self-efficacy is mostly discussed together with job performance, job satisfaction, and organizational commitment variables. Stajkovic and Luthans (1998) evaluated 114 previous studies on self-efficacy in work life in their meta-analysis study. The examination was conducted into the relationship shared by self-efficacy and performance in the workplace. Self-efficacy was found to be significantly linked to work performance in the analysis. The analysis also indicated a significant within-group difference in individual correlations.

Studies in which career self-efficacy is discussed in the context of different demographic variables, especially gender, are noteworthy. Tresi and Mihelič (2023) investigated the varying relationship between career identity and career commitment, specifically testing self-efficacy as a moderator. Their study considered how this moderation manifests among employees with diverse family dynamics and genders. The study states that self-efficacy is decisive for women but does not play a significant role for men. In the same study, when the significance of the moderating effect in terms of family characteristics is examined, there are significant differentiating factors among women, while in men, self-efficacy only shows a significant effect in male employees with dependents. Karadirek (2023) states that there is a positive relationship between career development of female employees and professional self-efficacy and role model. The same study found no significant relationship between female employees' perception of glass ceiling and professional self-efficacy. Dickerson and Taylor (2000) found that task-specific self-efficacy is a significant determinant of a woman's career role choice as a leader or a group member. Momsen and Carlson (2017) stated that in their study examining the levels of self-efficacy and leadership values of female participants before and after attending graduate courses focusing on women's leadership issues, self-efficacy levels increased, especially in dimensions of promoting a productive work ethic and creating a positive work climate. In a study analyzing three-year data from the University Leadership Competition, it was found that female participants entered the competition experience with higher levels of leadership self-efficacy than men. On the other hand, both men and women managed to keep moderate growth measured a few months after the competition ended (Rosch et al., 2024). Sarkar (2022) states that all factors except social support in the workplace have a significant positive effect on women leaders' overall self-efficacy perceptions, and that overall self-efficacy is also significantly related to women leaders' career goals.

Upon review of the literature, a notable increase in the publication rate of empirical studies is evident, specifically those where career self-efficacy is jointly considered alongside additional psychological or organizational concepts such as job satisfaction, career goal, career exploration, career satisfaction, motivation, and job stress. Ehrhardt and Sharif (2019) state that the relationship quality with colleagues has a direct impact on career self-efficacy, and this increases career outcome expectations, goals, and

exploration behaviors. Analyzing university students, Arghode et al. (2021) found that career self-efficacy importantly dictates students' abilities to form career interests, successfully set professional goals, and make effective career choices. In addition, this research found that studying abroad affects career competencies and career development. Hofacker's (2014) research with 131 engineers using the Career Decision-Making Self-Efficacy Scale (Betz at al., 1996) presents that engineers have high career self-efficacy.

Özkoç and Kendir (2018) stated that they analyzed career commitment, self-efficacy, and career satisfaction variables with an impact model for the first time in Turkish literature. They determined the changes and ranges of employees' careers in their study. They stated that employees' self-efficacy levels have an impact on the positive relationship between career commitment and career satisfaction. Similarly, in the study (Eyitmiş et al., 2020) examining the effect of self-efficacy and motivation on the quality of work life, it is found that both variables have a direct effect on the quality of work life. In the same vein, Durmaz and Ören (2017) stated that high self-efficacy leads to an increase in job performance and productivity, and they found that it prevents anxiety and stress that arise in business life. The researchers included the conclusion that people with high self-confidence are not only more likely to cope with managerial stress but also have an advantage in being employed. Yeloğlu and Doğan (2021) found that self-efficacy significantly predicts lower levels of job stress. Importantly, they confirmed that perceived organizational support accounts for all of the variance in this relationship, establishing its role as a full mediator. Moreover, a study by Altıntaş and Altıntaş (2023) established a weak but significant positive link connecting self-efficacy and work engagement. This outcome effectively validates existing findings and contributes further confirmation to the research literature.

METHOD AND DATA SET

In this study, a bibliometric analysis was carried out in order to determine the field and sub-fields with which the concept of career self-efficacy is related. A hypothetical design is aimed at in the study, in which the co-occurrence technique is preferred as the bibliometric method. The bibliographic data for this study were retrieved from the Web of Science (WoS) Core Collection database. To ensure a focused analysis on the organizational and professional aspects of the field, the search was restricted to the Business and Management categories. The search string “career self-efficacy” was employed, targeting titles, abstracts, and keywords. The data collection was conducted between July 5 and July 8, 2025, covering a 40-year temporal scope from 1985 to 2025.

After applying the inclusion criteria, specifically limiting the document type to research articles, a final sample of 323 articles indexed in SSCI was obtained for analysis. No language restrictions were applied

to maintain global inclusivity. Regarding data processing in VOSviewer, a thesaurus file was not utilized. This decision was made to preserve the raw terminological diversity and the organic evolution of the concept as recorded in the literature, avoiding potential researcher bias in merging distinct, though seemingly similar, academic constructs.

Given this context, the study is specifically designed to review the literature, the development process of the field, and the study subjects within the boundaries of the field, and to reveal the relationships of these study subjects with each other. The data were evaluated with the VOSviewer program. Bibliometric analysis is utilized to uncover key publication tendencies—such as those related to article and journal impact—to investigate collaborative structures, and to define the underlying intellectual organization of a specific research area in the literature (Akbaş, 2023; Donthu et al., 2021; Yalçıner & Altıntaş, 2024). In the context of bibliometric methodology, co-occurrence is frequently utilized to map out the underlying association that ties two specific bibliographic units together within the same academic investigation (Gries, 2020; Lancia, 2006; Roche, 2020; Zhou et al., 2022). In the co-occurrence analysis of bibliometric studies, frequently used terms in a text are selected, the relationships between these terms are calculated through the connections between them, and these terms are mapped on the basis of relationship or co-occurrence (Roche, 2020). In this context, the method of the study consists of systematic stages designed to analyze the data and reach reliable results.

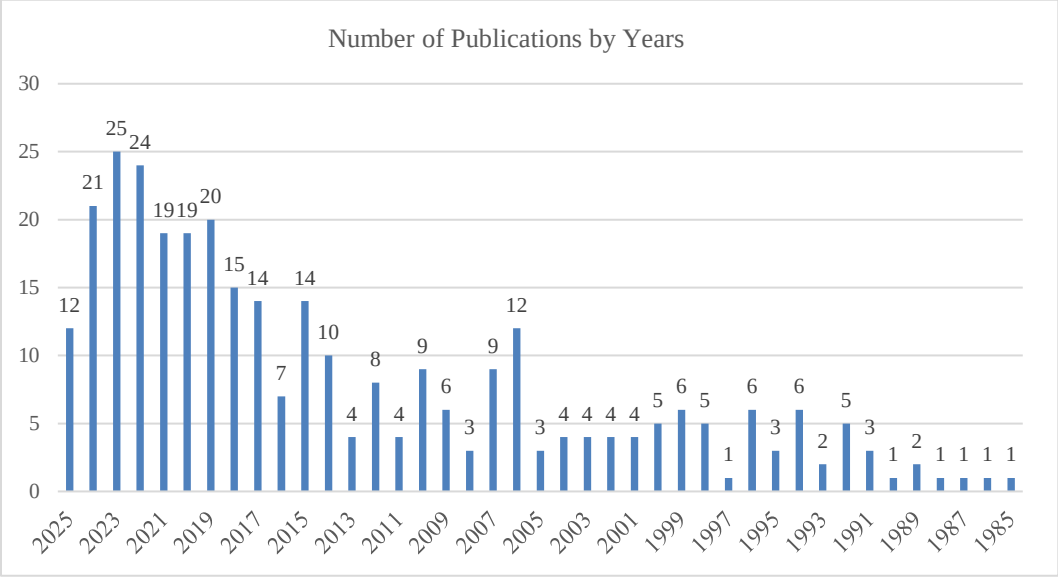
In this study, besides Total Link Strength, betweenness centrality was utilized to evaluate the structural importance of the nodes within the network. Betweenness centrality identifies keywords that act as 'bridges' between different research clusters, facilitating the flow of information across disparate themes. High centrality scores indicate concepts that are essential for the integration of the career self-efficacy literature. As a result of the study, as mentioned above, 323 articles were identified, keywords were extracted from the relevant articles and categorized, and a total of 758 keywords were reached within this scope. Word-based co-occurrence analysis was preferred with the bibliometric analysis method. Within the framework of these criteria, 28 keywords related to the concept of career self-efficacy were identified. Afterwards, it was aimed to determine the transformations related to the concept by analyzing the trends of the articles published for each year related to the concept. The data were analyzed and visualized with the VOSviewer software program. The literature is mapped with the help of the VOSviewer program, and conceptual relationships and themes are presented in a visual format. VOSviewer is an effective software for visualizing and making detailed analyzes of large data sets, and it is widely used in mapping bibliometric analyzes.

FINDINGS

Publication Count, Author, and Journal Weights

The change in the number of academic articles on career self-efficacy over the years is shown in the graph below. As seen in Graph 1, the number of studies generally follows a variable trend with an increase. While 1 study was published in 1985, it reached 25 in 2023, and 21 in 2024. It is observed that the level of interest in the subject intensified in 2022 and 2023.

Graph 1: Change in number of publications by years

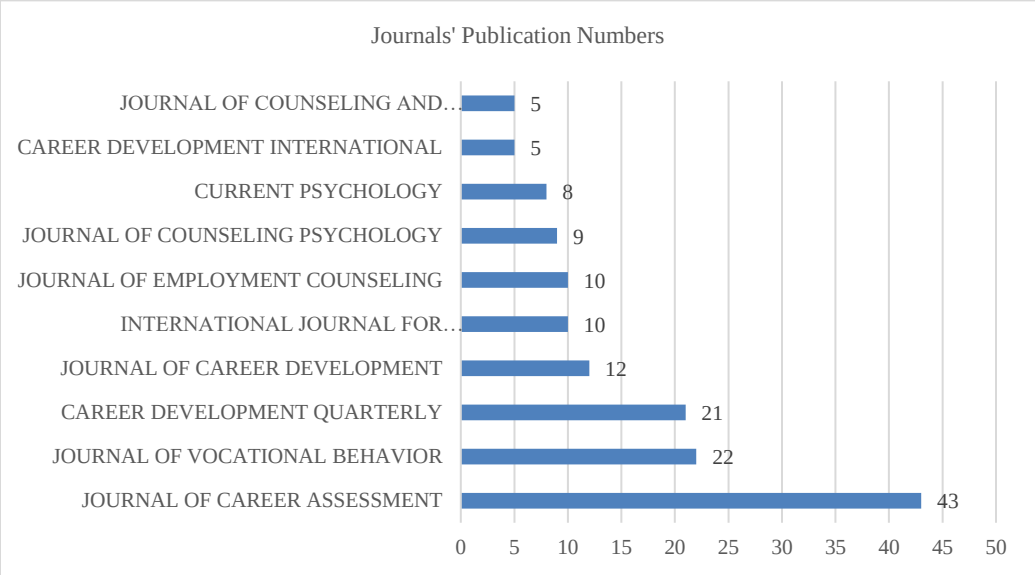


This finding presents a sustained and growing academic interest on career self-efficacy over the last four decades. Starting with an article in 1985 to 25 works in 2023 can be explained in the way that the topic has evolved into a main topic from a micro concept in career development and management literature. The increasing number of works in 2022 and 2023 possibly presents the increasing attention on the career self-efficacy coming with the rapid technological changes and the COVID-19 pandemic. It can be assumed that reaearchers have been driven to explore how individuals manage their careers in the environment of uncertainity. The significant number in 2025 (12, in the first six months) projects this interest will continue in the future.

Below, in Graph 2, are the top 10 journals that are most effective in the WoS database regarding career self-efficacy, and the number of studies published in these journals. When the data in Graph 3 is examined, it is seen that the journal with the most publications on the subject is the Journal of Career

Assessment. In addition, the Journal of Vocational Behavior and Career Development Quarterly journals follow this journal in terms of the number of works they have published.

Graph 2: Journals with the most publications



The dominance of the Journal of Career Assessment presents the significant role of measurement and psychometrics in career self-efficacy research, as this journal is highly specialized in these areas. Journal of Vocational Behavior and Career Development Quarterly's established positions suggests that career self-efficacy is fundamentally embedded within the core vocational psychology discipline and is a key construct for understanding both theoretical principals (JVB) and practical application (CDQ). The consistent ranking of these three high-impact journals can be explained as the literature on career self-efficacy is academically mature and has established clear, authoritative journals.

The numerical productivity in the WoS database regarding career self-efficacy is captured in Graph 3, which lists the ten authors with the most published works. In the analysis, Nancy E. Betz, Fred H. Borgen, Peter A. Creed, and Lisa Y. Flores were identified as the authors who published the most works. When looking at the author's works and numbers, it can be said that Nancy E. Betz's influence is particularly greater in the maturation and dissemination of the concept.

Graph 3: Number of works by authors



As it has been stated Betz, Borgen, Creed, and Flores are identified as the top prolific authors. This finding indicates that they form the core of career self-efficacy literature. Specifically, Nancy E. Betz has greater influence points owing to her foundational role in advancing the theoretical and measurement aspects of the concept, presumably through her high-impact articles. This leading researcher's productivity presents the field's knowledge base is highly concentrated and built upon the principles of Social Cognitive Career Theory (SCCT). It is also remarkable that the other scholars in the field are closely linked to SCCT. It can be explored in the future that whether this concentration on SCCT producing diverse thematic studies or if it results in a relatively narrow focus within the literature.

An author citation analysis was conducted to determine the number of citations, selecting the criteria of at least 1 publication and at least 1 citation. According to the specified criteria, 731 authors who have published studies on career self-efficacy were identified. The authors with the most citations among these authors were Nancy Betz with 1633 citations, K.M.O'Brien with 349 citations, and L.Y. Flores with 267 citations. Among these authors, Nancy Betz also ranks first in terms of total link strength.

Table 1: Citation counts of authors

Author Name	Number of Publications	Number of Citations Received	Total Connection Strength
Betz, N	26	1633	707
0'Brien, K.M.	3	349	69
Flores, L.Y.	3	267	75
Hirschi, A	3	248	4
Allen, T.D.	1	227	24
Day, R.	1	227	24
Hackett, G.	3	219	104
Fouad, N.A.	1	214	62
Smith, P.L.	1	214	62
Tang, M.	1	214	62

The significant difference of citation count between Nancy Betz the next most-cited author clearly indicates her status as the foundational and pioneering scholar in career self-efficacy area. Her high number of citation (1633) demonstrates that her works are foundational in the literature. Therefore, subsequent research has been built on the theoretical or methodological principles of her works. In addition, her pioneering position in Total Link Strength indicates her influence is not merely high but considerably integrated into the scholarly network, indicating extensive collaborative ties and knowledge transfer within the field. O'Brien and Flores are also identified as highly influential, second-tier figures. They, presumably, have contributed critical extensions or applications of the career self-efficacy theory established by Betz and her research partners.

Trend Analysis

Trend analysis by years

Here, it was examined which topics the concept of career self-efficacy was discussed together with in the academic studies published, according to years.

Figure 1: Trend analysis of academic studies by years

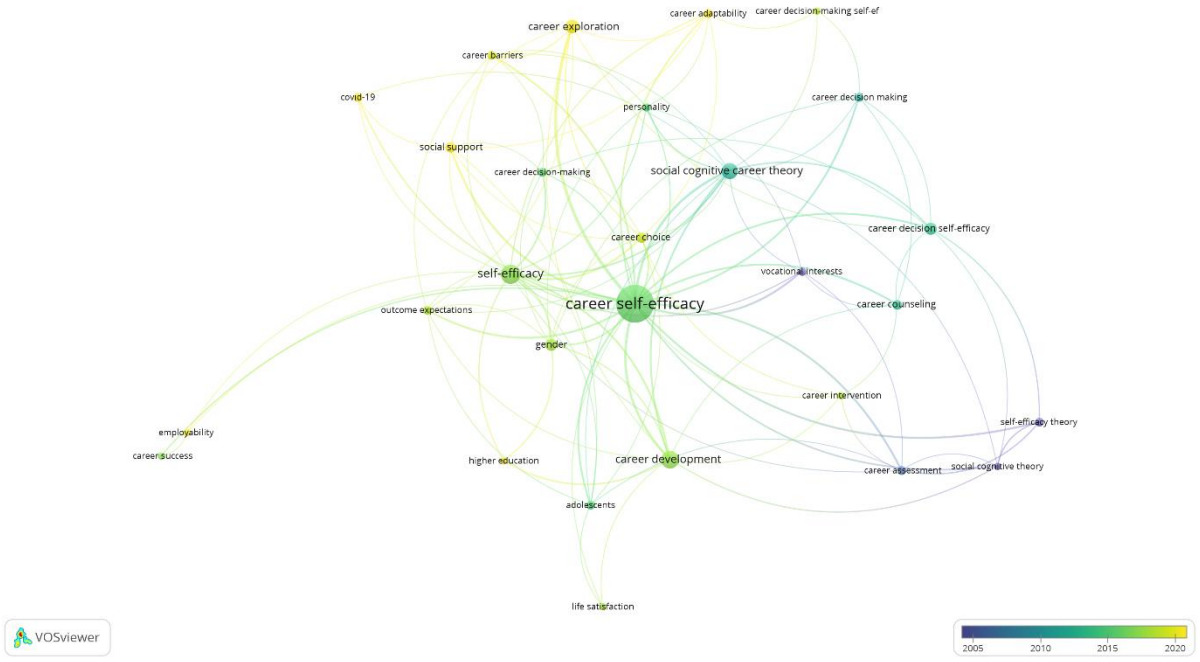


Figure 1 shows the results of the trend analysis of academic studies by years. Common keywords in academic studies published in the same years are shown in the same color. However, as seen in Figure 1, it is seen that the main connection between the 7 clusters formed by the keywords as a result of the analysis is career self-efficacy. When the current keywords used in academic studies conducted in the last 10 years are examined, social cognitive theory, career self-efficacy, self-efficacy, career development, career success concepts; It is observed that there is a general trend towards the concepts of gender, career exploration, career barriers, career adaptation, social support, and Covid-19 pandemic. The number of articles focusing on the concept of career exploration has increased in recent years.

Previous studies in the literature mostly address the topics of career self-efficacy, self-efficacy, and social cognitive theory. According to the results of the analysis, it can be stated that more research should be done on career barriers, social support, career decision-making, and career adaptation. In addition, the current research reveals that more focus should be placed on organizational dynamics such as organizational policy, organizational justice, and organizational commitment in terms of career self-efficacy. The vast majority of academic studies have been conducted on social cognitive theory, self-efficacy, and career development. Most of the mentioned studies are concentrated in the fields of applied psychology and educational sciences. According to the results of the current research, the increasing interest in research on

career exploration, career adaptation, career barriers, and social support in the context of career self-efficacy reflects the necessity and importance of researching these issues.

As a result of the analysis, it was observed that most of the research addressed the issue of career self-efficacy in the field of educational sciences in the context of vocational decision-making and guidance for adolescents. Accordingly, it can be said that there is a need to create a common conceptual framework. However, it appears that more focus should be placed on adults currently in business life, specifically in the field of organizational behavior, in research to be conducted on career self-efficacy. In addition, it can be stated that there are various missing concepts regarding career self-efficacy in the literature. For example, it can be said that more research is needed on disadvantaged individuals, gender, and career barriers.

Trend analysis according to current research areas

As a result of the trend analysis, the intensities of the topics discussed in academic studies in relation to the concept of career self-efficacy were examined.

Figure 2: Intensity analysis by topic in academic studies

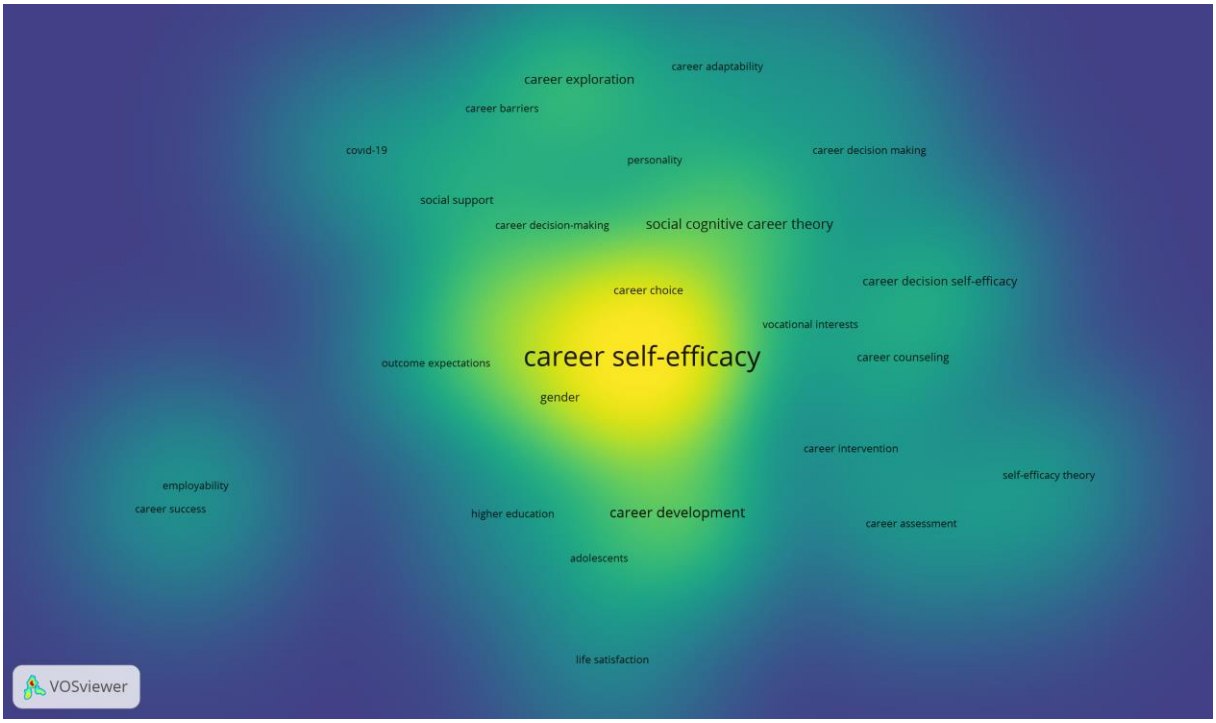


Figure 2 shows the intensity map of academic studies on career self-efficacy in the 1985-2025 period. As can be seen in the figure, the concept of career self-efficacy is closely positioned with career development, self-efficacy and career interests. In addition, it is seen that social cognitive theory, career

interests, career development and self-efficacy concepts are used together and predominantly in the studies conducted in the context of career self-efficacy. According to the trend analysis based on keywords, it is seen that social cognitive theory, career development, self-efficacy and career interests concepts are closely positioned in terms of the intensity of being used together in the researches conducted in recent years. In the analysis, it is also seen that career self-efficacy is associated with variables such as life satisfaction, gender and social support for adults, as well as determining career goals in education life in the researches conducted.

In the intensity map revealed it is seen that there is an intensity on the concepts of career development, social cognitive theory, self-efficacy, career interests and career exploration. These results can be interpreted as the most frequently used keywords and the change in the general trenda are compatible with each other.

Co-Word Analysis: Clustering, Visualization

The analysis was conducted according to the criterion that the words appear in at least 5 works. As a result of the analysis, 758 words were reduced to seven clusters and 28 sub-themes. The aim here is to determine the upper-main topics. Below are the clusters, sub-clusters, their weights and explanations. This structure enables a detailed evaluation of the main themes and related sub-themes obtained from the analyzed data. The weights of the clusters reflect the importance of the related concepts in the literature and their relationships with each other. The most significant finding reached as a result of the analysis is that the studies on career self-efficacy are related to seven main clusters in the context of total relationship power.

First cluster: Career awareness

The first cluster includes the concepts of career assessment, career counseling, career decision self-efficacy, career intervention, career self-efficacy, self-efficacy theory, social cognitive theory and vocational interests. It is seen that the first cluster has the highest co-occurrence and connection strength with a total co-occurrence rate of 44.5% and a total connection strength rate of 41.8%.

Table 2: Weights of first cluster sub-themes

Cluster Total	Co-occurrence	Total Connection Strength
Career Assessment	7	14
Career Counseling	8	10
Career Decision Self-Efficacy	12	15
Career Intervention	5	5
Career Self-Efficacy	119	118
Self-Efficacy Theory	7	14
Social Cognitive Theory	5	12
Vocational Interests	6	12
Total	**169**	**200**

The reason why the first cluster is called career awareness is that the mentioned concepts and theories can explain career self-efficacy with its different dimensions. Regarding career self-efficacy, Lent and Hackett (1987) stated that there are few studies investigating the causal links between self-efficacy, post-university career development and adults' career behaviors, and expressed the necessity of more comprehensive research on this issue. In the following process, it can be concluded that a significant accumulation of knowledge about self-efficacy in business life has been formed in the context of the concepts mentioned above, with the studies conducted in this direction.

The weight of the first cluster's metrics (44.5% co-occurrence) presents that self-efficacy and its social cognitive roots have been correlated with professional activities such as assessment, counseling, and intervention. This significant linkage indiccates that theory is not studied in isolation, on the contrary the most impactful research is focused on the direct application and measurement of self-efficacy in practical career development settings. The inclusion of vocational interests has broadened this core. Furthermore, it could be interpreted as a comprehensive and integrated approach to organizational behavior and career counseling. Consequently, this cluster establishes the theoretical core of the field, demonstrating that career self-efficacy is primarily conceptualized through the lens of Social Cognitive Career Theory (SCCT) and its practical application in intervention strategies.

Second cluster: Career advancement

The second cluster includes the concepts of career choice, career decision making, career development, gender, higher education and self-efficacy. The total co-occurrence rate of the second cluster was determined as 24.3% and the total connection strength rate as 25.5%.

Table 3: Weights of second cluster sub-themes

Cluster 2 Total	Co-occurrence	Total Connection Strength
Career Choice	9	17
Career Decision Making	7	11
Career Development	26	32
Gender	13	16
Higher Education	5	7
Self-Efficacy	32	39
Total	**92**	**122**

This theme, called "career advancement," and the sub-themes it contains, shed light on the areas to which the concept of career self-efficacy has expanded in the literature. The concept of career self-efficacy expands social cognitive career theory and reveals this expansion process with the aspects examined in the literature. Career self-efficacy has been examined in various aspects such as career choice (Betz, et al., 1996; Kuder and Zytowski, 1991; Lucas and Wanberg, 1997; Wang et al., 2023), career decision-making (Rottinghaus et al., 2006), career development (Chughtai, 2018), gender (Buthelezi et al., 2010; Dickerson and Taylor, 2000; Keulemans, 2021; Ruggs et al., 2023; Tresi and Mihelič, 2023), higher education (Arghode et al., 2021), and self-efficacy (Schwarzer and Jerusalem, 1995; Tams, 2008). On the other hand, it is seen that the keyword with the highest connection strength in this cluster is "self-efficacy".

While Cluster 1 can be characterized as foundational, Cluster 2 appears as developmental. The themes of Career Development, Career Decision Making and Higher Education in Cluster 2 indicate a specialized body of study concentrating on the transitional stages of early adulthood and formal schooling. This part of career self-efficacy research is mainly interested in factors that facilitate or hinder effective career planning and choice during these turning points of individuals' life. This implies that the findings in this cluster highlight the contextual dimension of the construct, framing career self-efficacy as a developmental tool used to navigate transitions in higher education while accounting for demographic variables such as gender.

Third cluster: Career adjustment

The third cluster includes the sub-themes of career adjustment, career decision-making, career decision-making self-efficacy, personality, and social cognitive career theory. It is seen that the total co-occurrence rate of the third cluster is 12.6% and the total connection strength rate is 13.8%.

Table 4: Weights of third cluster sub-themes

Cluster 3 Total	Co-occurrence	Total Connection Strength
	48	**66**
Career Adaptability	7	11
Career Decision Making	7	10
Career Decision-Making Self-Efficacy	5	3
Personality	6	10
Social Cognitive Career Theory	23	32
Total	**48**	**66**

Though the total metrics (12.6% and 13.8%) of the Cluster 3 present a smaller share of career self-efficacy literature, its content is significant. This cluster fuctions as a connection point between the foundational and evelopmental clusters mentioned above. The Cluster 3 that is named as career adjustment connects SCCT's main principals with the ongoing, cyclical natüre of career journey. The reappearance of the themes of career decision-making and social cognitive career theory signifies that even in studies related to working adults' career development, the theoretical and decision-making principles keep being essential. The Cluster 3 notifies the dynamic process where self-efficacy is continually reinforced or diminished by real-world work experiences. Bandura (2012) set forth the necessary theoretical, methodological, and analytical framework for studying the influence of perceived self-efficacy on development and change across individual and social contexts. According to the results of the research (Wright et al., 2014) including 486 participants, individuals who connected more securely perceived more social support, encountered fewer career obstacles, and exhibited higher competence in both academic and career fields. This suggests that this cluster identifies the psychological pillar of the literature, where career self-efficacy is understood as an internal coping mechanism intrinsically linked to personality traits and individual adjustment processes.

Fourth cluster: Career expectations

The fourth cluster includes the concepts of career barriers, career exploration, and outcome expectations. The total co-occurrence rate of the fourth cluster was determined as 8.1% and the total connection strength rate as 10%. The cluster named as career expectation prioritizes the mechanisms of career investigation and obstacle appraisal. The linkage among career exploration, outcome expectations, and career barriers indicates a specific field of study that empirically models how the perception of external challenges shapes the self-efficacy and outcome expectations. The realtively small size of this cluster can

be explained in the way that the research specifically modeling this complex three-way interaction is currently less frequent than other themes.

Table 5: Weights of fourth cluster sub-themes

Cluster 4 Total	Co-occurrence	Total Connection Strength
Career Barriers	7	12
Career Exploration	17	23
Outcome Expectations	7	13
Total	**31**	**48**

Social cognitive processes affect individuals' career expectations (Lent et al., 2017). The study by Hackett and Byars (1996), which synthesized existing literature on the career development of African American women, explores the functional relationship between social cognitive mechanisms and the development of self-efficacy and outcome expectations. Consequently, by focusing on the appraisal of obstacles, this cluster underscores a resilience-oriented conceptualization, exploring how individuals' efficacy beliefs are tested against perceived career barriers.

Fifth cluster: Adolescents

The fifth cluster includes the concepts of adolescents and life satisfaction. The total co-occurrence rate of the fifth cluster was determined as 3.1% and the total connection strength rate as 3.1%. This cluster named as Adolescents presents the vital element of well-being that is life satisfaction. In addition, the cluster applies this crucial concept to the younger population group. This finding indicates a specific ares of research focusing on the quality-of-life outcomes of career self-efficacy perception for adolescents. In this context, it is possible to study career self-efficacy as an antecedent or mediator resulting in life satisfaction during this initial phases of life and vocational exploration.

Table 6: Weights of fifth cluster sub-themes

Cluster 5 Total	Co-occurrence	Total Connection Strength
Adolescents	7	12
Life Satisfaction	5	3
Total	**12**	**15**

It could be stated that career self-efficacy is discussed in the literature together with the gender variable in the context of adolescents' career choices. Findings from the study (Papyrina et al., 2021) indicate a divergence in gender specific self-efficacy: females expressed greater confidence in interpersonal and

organizational abilities, whereas males reported higher self-perceptions of competence across problem solving, analytical, technical, and computer domains. It can be said that this situation affects young people's career choices. However, it is stated that there are no gender differences in individuals' leadership, initiative, strategic planning, and entrepreneurship skills (Williams & Smith, 2016). In the studies conducted in the field of career self-efficacy, it is stated that personal factors such as self-esteem and self-efficacy, together with job-related factors such as control and reward, are important factors affecting job satisfaction and life satisfaction (Williams & Smith, 2016). Lent and Brown (2008) explain job satisfaction and life satisfaction with their affective, cognitive, behavioral, and social aspects in the social cognitive model they developed. The study also discusses the possible effects of the model on career assessment and intervention. This implies that this cluster expands the scope of the field into a holistic dimension, suggesting that career self-efficacy is increasingly viewed as a determinant of broader psychological health and subjective well-being.

Sixth cluster: Career success

The sixth cluster named as “Career Sucess” includes the concepts of career success and employability. The total co-occurrence rate of the sixth cluster was determined to be 2.6%, and the total connection strength rate was 1.4%. The low co-occurrence (2.6%) and connection strength (1.4%) of this cluster are significant. This can be interpreted in the way that the research conducted to empirically linking self-efficacy directly to high-level concepts like career success and employability is not very common currently. In the same way, these themes are not frequently seen interconnectedly with the career self-efficacy in the global literature.

Table 7: Weights of sixth cluster sub-themes

Cluster 6 Total	Co-occurrence	Total Connection Strength
Career Success	5	4
Employability	5	3
Total	**10**	**7**

This cluster indicates the notable focus on the measurable outcomes of career development. Career success includes both objective measures such as salary, promotion and subjective evaluations such as career satisfaction. On the other hang, employability means an individual's ability to get and retain employment. The sub themes of the sixth cluster present a notable and new research stream dedicated to explore the direct translation of career self-efficacy beliefs into concrete marketplace achievements. Related to this cluster, studies examining individuals' self-efficacy perceptions according to major professional fields are noteworthy in the literature. The results of studies examining individuals' self-efficacy perceptions regarding specific professional fields in the relevant literature (Betz & Hackett, 1981; Kuder & Zytowski, 1991; Lucas

& Wanberg, 1997; Rooney & Osipow, 1992) overlap with each other and form a basis for research to be conducted on career self-efficacy. Therefore, the low co-occurrence in this cluster reveals a significant outcome-based gap; it indicates that while the field is strong on 'process,' it has yet to fully integrate measurable career achievements and long-term employability into its core conceptual framework.

Seventh cluster: Social support

The seventh cluster includes the concepts of Covid-19 and social support. It is observed that the total co-occurrence rate of the seventh cluster is 4.4% and the total connection strength rate is 4.1%. This cluster is notable as it encompasses Covid-19 that is a unique and global crisis event. In addition, the cluster links the theme Covid-19 to one of the major coping resource, social support. The emergence of this cluster indicates a niche research area to explain the effects of the pandemic on career self-efficacy. Since self-efficacy refers to one's the belief in his/her ability to magane tasks successfully, an extraordinary disruption like Covid-19 requires the study of protective factors. At this point, social support appears as one of the significant factors protecting or repairing career self-efficacy beliefs during the extreme uncertainty and change periods.

Table 8: Weights of seventh cluster sub-themes

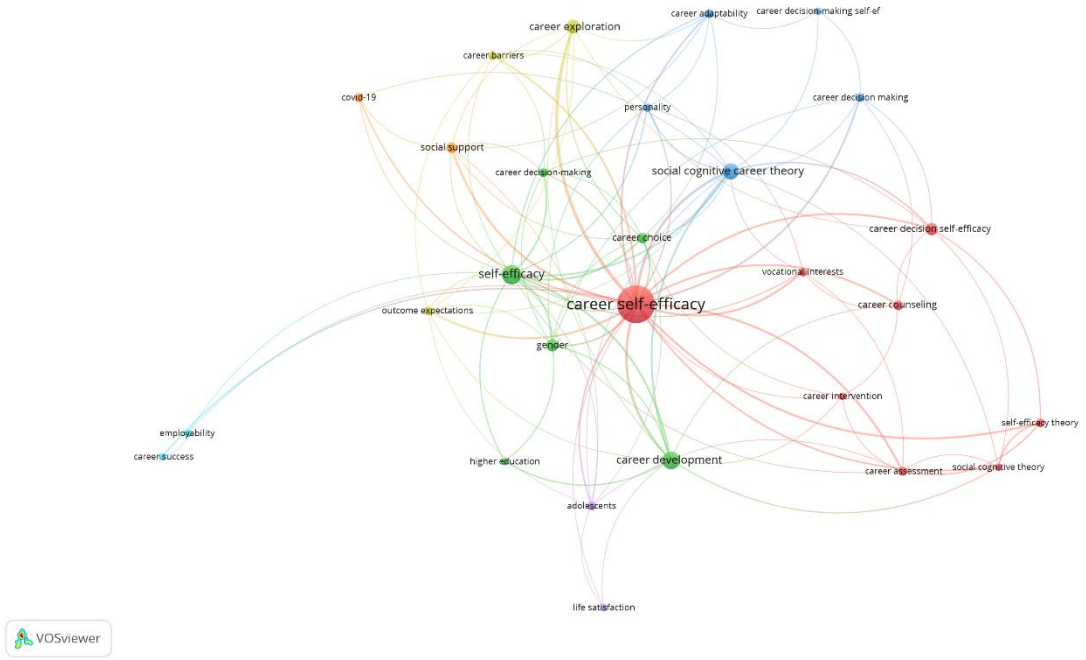
Cluster 7 Total	Co-occurrence	Total Connection Strength
Covid-19	7	6
Social Support	10	14
Total	**17**	**20**

As it mentioned above the issue of career self-efficacy has been addressed in relation to Covid-19 similar to many areas and subjects. Therefore, this cluster expands the scope of contextual factors. It is concluded that the career self-efficacy research has focused on the dynamic and acute crises. It aims to explain how immediate, large-scale crises' job-related results are reduced by perceived social support to help individuals keep their belief in their career self-efficacy. It is also significant that gender and enthnicity topics frequently discussed in the context of the social support sub-theme (Cho & Ryu, 2016; Dickerson & Taylor, 2000; Momsen & Carlson, 2017; Papyrina et al., 2021; Rosch et al., 2024; Wright et al., 2014). Thus, this cluster reflects the adaptive and relational evolution of the concept, conceptualizing social support as a critical protective factor that sustains career self-efficacy during periods of extreme environmental uncertainty, such as the Covid-19 pandemic. It is possible to say that addressing the issue of career self-efficacy in the context of individuals with disabilities in future research will contribute to the relevant literature.

Visual Mapping

Here, visual mapping was performed depending on the relationship systematics of the themes with each other.

Figure 3: Trend analysis in academic studies



As seen in Figure 3, international studies on the concept of career self-efficacy between 1985-2025 have been evaluated with the analysis made with the Vosviewer program. It is interpreted that the concepts located close to each other in the map created as a result of the analysis have a higher co-occurrence value. The location and size of the circles in the network map show the degree of importance and meaningfulness of that concept. When the map resulting from the analysis in the current research is examined, it is seen that academic studies are concentrated on the concepts of career self-efficacy, career development, self-efficacy, and social cognitive career theory.

The analysis of betweenness centrality reveals that 'career self-efficacy', 'self-efficacy', 'social cognitive career theory', and 'career development' possess the highest centrality scores. These keywords function as the primary 'intellectual bridges' of the network. Specifically, 'self-efficacy' serves as a bridge between general psychological constructs and vocational behavior, while 'social cognitive career theory' (SCCT) acts as a theoretical anchor connecting developmental stages (such as adolescence) with vocational

outcomes (such as career success). The strategic position of 'career development' in the network suggests it is the overarching goal that synthesizes various sub-themes like career exploration and decision-making. These findings confirm that the field is structurally integrated through these core constructs, which facilitate transitions between diverse research streams.

The significance of these four concepts in the network map clearly presents that these concepts have a determinant role in the field. Specifically, the obvious focus on SCCT illustrates its continued centrality as the leading theoretical lens through which career self-efficacy is understood and examined internationally.

A notable limitation of this study is its reliance on a single database, the Web of Science (WoS) Core Collection. Although WoS is considered the gold standard for high-quality bibliometric metadata, the exclusion of other databases such as Scopus or PsycINFO may have limited the coverage of specific management and psychology-related literature that is not indexed in WoS. The decision to use a single database was driven by the necessity of ensuring metadata consistency; merging data from disparate sources frequently introduces significant technical challenges in VOSviewer, such as duplicate entries and inconsistent citation formats, which can compromise the accuracy and reliability of network visualizations. To address this, future research should consider employing multi-database hybrid analysis techniques or advanced data-merging tools to integrate Scopus and PsycINFO data, thereby providing a more exhaustive mapping of the career self-efficacy domain.

CONCLUSION

In this study, a bibliometric analysis was conducted on articles obtained by using the keywords "career self-efficacy" in the Web of Science (WoS) database. It is evident from tha analysis that the number of articles on career self-efficacy has increased significantly since 2017. According to the research area, applied psychology and educational sciences categories come to the forefront, while the most published author is Nancy Betz. It has been determined that a significant part of the researchers on the subject are from the USA and that the journal in which they publish the most is the Journal of Career Assessment.

It must be acknowledged that the concept of career self-efficacy, which Lent and Brown (2006, 2008) significantly expanded and developed the SCCT conceptualization in the context of career decision and professional environments, has become a topic that has shown a significant development in the management science literature in recent years. In addition, it can be stated that the concept of career self-efficacy is a developing issue in the business world with studies in which career management and lifelong career self-management processes come to the fore (Lent et al., 2017). The bibliometric analysis we conducted on

career self-efficacy reveals that this subject is present in the business management literature but is still a developing field.

The cluster analysis of the career self-efficacy literature presents a noticable ranking of research topics. The majority of the litearture (Cluster 1) is considearbly conducted on the Social Cognitive Career Theory (SCCT) and interventions (44.5% co-occurrence). The strong foundation of the first cluster is followed by studies on developmental applications (Cluster 2) such as career decision making, gender, and higher education. Then, works of career self-efficacy literature study the internal processes and coping mechanisms of self-efficacy, examine adjustment and personality (Cluster 3). In addition, the literature investigate the appraisal of career barriers (Cluster 4). In this analysis, the clusters that have the lowest metrics center on the certain outcomes such as connecting self-efficacy to general well-being (Cluster 5) and measurable achievements (Cluster 6) such as career success and employability. The low co-occurance of Cluster 6 presents a clear empirical research gap on the long-term success outcomes of the SCCT structure. Finally, Cluster 7 including the Covid-19 and Social Support indicates the field's responsiveness to dynamic crises. It can be concluded that social support is being studied as a factor protects or restores career self-efficacy during the extreme uncertainity periods.

A critical synthesis of the identified clusters reveals a structural disconnect between career self-efficacy beliefs and long-term, measurable career success. Our bibliometric analysis identifies 'Adolescents', 'Career Decision', and 'Career Exploration' as dominant clusters, suggesting that the existing literature is heavily saturated with studies focusing on the pre-entry or preparatory phases of careers. This prevalence of student-based samples explains the empirical gap noted in bridging self-efficacy with distal outcomes. Theoretically, this indicates that the field currently treats self-efficacy primarily as a mechanism for initial career entry rather than a sustaining force for long-term upward mobility. Consequently, the sparse connection between beliefs and tangible success is likely an artifact of the methodological tendency toward cross-sectional designs involving younger cohorts, rather than a lack of theoretical relevance.

The findings obtained in the research show that although there are academic studies on career self-efficacy in our country, there is a wider literature on this subject abroad. It can be stated that the findings reached in the current study are a guide as to which variables the concept will be discussed together in future studies on career self-efficacy. In particular, the findings reached through network clusters provide important indicators in determining in which aspects this issue is developing. It is possible to say that this information may be useful for researchers in creating the theoretical infrastructure that they will follow in their subsequent studies. In addition, the main academic journals in which the most publications on career

self-efficacy were made in the current research were determined. Thus, it can be stated that the results reached are guiding for future research. The data of the study were obtained by scanning articles in the Web of Science (WoS) database regarding career self-efficacy in the business and management science categories. This situation can be considered as a limitation of the study. At this point, it is possible to say that more comprehensive research can be done using various databases.

The findings of this bibliometric analysis offer concrete insights for career practitioners and organizational leaders. First, the prominence of the 'Social Support' cluster suggests that career counseling interventions should not focus solely on individual skill-building but must also incorporate mentorship and peer-support mechanisms to enhance self-efficacy. Second, given the distinction between the 'Adolescents' and 'Career Success' clusters, practitioners should recognize that self-efficacy interventions designed for students (pre-entry) may differ significantly from those needed for working professionals. Consequently, HR managers should implement continuous self-efficacy reinforcement programs—such as 'mastery experience' workshops—to ensure that employees' initial confidence translates into sustainable, long-term career success.

AUTHORS' STATEMENT

The authors declare that all contributions to this manuscript were made by the listed authors. The authors also declare that there are no conflicts of interest.

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