

Bibliometric analysis and mapping with vosviewer in neet-head research in social sciences

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ABSTRACT

The concept of NEET, which is derived from the initials of the words “Not in Employment, Education or Training”, is a classification used to describe only the idle young unemployed in the labor market between the ages of 15-65. Starting from England, which we can accept as the birthplace of the concept, it has emerged as a research field that has been increasing day by day since the 2000s. At this stage, bibliometric analyzes gain importance in order to see the historical process, interaction power, scientific and political effects of scientific research related to NEET, and to measure its quality and quality. In order to make this analysis, references to scientific studies are an important indicator. In this study, citation analysis was performed with the help of VOSviewer open source software, which works on a cluster-based basis thanks to its special algorithms, and the relations between researches, countries, keywords and authors were analyzed. As a result of this analysis, relationship networks were mapped and interpreted.

1. Introduction

It has been observed that since the 1980s, when the effects of globalization began to show, especially in developed countries, young people are not in employment as well as in education and training, and the number of young people not taking part in education, employment and training is increasing day by day. Structural change in emerging markets with globalization has caused various problems in the labor market. Concepts such as youth unemployment and youth employment were insufficient to explain the size of the emerging problem and new concepts have emerged to explain these problems. One of these emerging concepts is the concept that young people are not “neither in employment, education or training”. It is the concept expressed as NEET (Not in Employment, Education or Training) in short, which covers the fact that young people do not take part in education and training in addition to not being in employment. When examined on a global scale, it is seen that the young people in this group are made up of a heterogeneous structure, that is, they come from different social sections, and they are in this group for different reasons. However, the number of young people in the NEET group is increasing every year (Köken and Koç, 2022).

The aim of this concept is to focus on youth at risk who are unemployed and passive outside of their education processes. With the rapid technological development experienced after the millennium (Işık, 2013), the transition from education to business life has become increasingly complex for young people in a world that has undergone a significant transformation with the impact of the 2008 Global Financial Crisis and the COVID-19 pandemic. New working and training models have emerged, which have increased the variety and ways of doing business. Therefore, there is a need to address young people with NEET separately. Youth defined as NEET generally includes young people between the ages of 15-24 or 15-29. With this indicator, it has become possible to develop a broader perspective on young people. This term appears as an economic indicator for development, as well as a social indicator used to reveal the economic and psycho-social status of young people (Tolgay and Çakır, 2022). The fact that young people enter a job after completing their education, have to change jobs constantly, and have a high risk of social exclusion in this process, revealed the need for different alternative concepts and determinations, and this gap was sought to be filled with the concept of NEET (Bruno et al., 2014).

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Therefore, in addition to youth unemployment, which is seen as an important problem in the labor market, the concept of NEET also emerges as a problem that should be carefully monitored. NEETs conceptually cover the young population who are unemployed and not included in the labor force, but also those who do not attend education (formal education, non-formal education, apprenticeship training, courses). From this point of view, the concept of NEET is derived from the initials of the words “Not in Employment, Education or Training” (Çolak and Koç, 2023a).

It is also extremely important to analyze the determinators of the NEET rate, which are also associated with the concept of NEET: information of determinants, and therefore the risk factors that can help policy makers implement the necessary measures to make analytical efforts against the social and economic consequences of the exclusion of young people from social and working life. The concept of NEET, which is observed in the young population today and lies at the basis of socioeconomic inequalities, has also become a phenomenon that causes disadvantaged groups to be left behind. Several key factors leading to the NEET problem include gender discrimination, low wages, insecure jobs, vulnerability to the effects of the financial crisis, continued unemployment, inefficient transition from school to work and inadequate on-the-job training. In addition, the distributive effects of skill-oriented technological change or the decline in the effectiveness of tax and benefit systems to redistribute market income, non-standard forms of employment and the lack of social protection between jobs, and their potential relationship with NEET rates (Maynou et al., 2022) have begun to be examined in intensified studies since the 2000s. Researchers are trying to understand and explain the concept of NEET in depth as a result of the relationships between the mentioned factors.

However, no study has been conducted to understand the trend of scientific research in the field of NEET, since when, which authors and their cooperation, influence or interaction, and bibliometric analysis of the studies. Bibliometrics actually allows the historical development of a scientific field to be examined through publications, citations, authors, countries, sources and institutions using mathematical and statistical methods, and provides researchers with a functional method for evaluating the increasing number of studies every year, allowing a more effective understanding of the field (Arslan, 2022).

In this context, the aim of our study is to analyze the authors, co-authors, keywords, countries and their connections between the studies scanned in the Web of Science and Scopus databases in the literature and contain the concept of NEET in the title, and the relations between them will be mapped using VosViewer version 1.6.19. As it is known, considering the increase in the number of scientific studies, it is almost a necessity to use computer-based programs to evaluate the development in a particular field of science.

Thus, it will be the first general bibliometric analysis in the NEET literature. In this way, the literature contribution of the study will contribute with a quality that includes the bibliometric analysis of the keywords determined as “NEET”, “NEETs”, “Not in Employment, Education or Training” and shows the development of the literature. It is the most important expectation from this study that it will direct the development of new studies to be conducted in the field of NEET.

2. Conceptual Framework and Literature

First coined in the United Kingdom in the late 1980s, “not in employment, education or training” was used to meet the need for an additional indicator to statistically identify young people. This was mainly due to changes in the UK benefits regime that deprived most 16-18 year olds of unemployment benefits (Furlong, 2007). In the United Kingdom, the Social Exclusion Unit, which drew particular attention to policy makers in its 1999 Bridging to Gap report, defined the group as those who spend a significant amount of time outside of any form of education, employment or training (NEET) during the critical period of late adolescence. Based on this important report from the UK Government's Social Exclusion Unit, an office called “ConneXions” was established to pursue a new policy of counseling and support for these young people, specifically devoted to the problems of this group, to help them make a successful transition to adulthood (Bynner and Parsons, 2002).

Following this step, the concept rapidly gained importance beyond the UK and, especially since the 2010s, equivalent definitions were adopted in all EU member states and subsequently incorporated into social policies and government programmes. Many European countries have defined NEET as young people aged 15-24 who are not in employment, education or training, have developed new indicators and have begun to measure and evaluate NEET groups within the young population by redesigning their Labor Force Surveys to measure the NEET phenomenon. Countries such as Japan, South Korea, New Zealand, Taiwan and Hong Kong have developed NEET definitions in accordance with their own cultures and social structures (Güngör, 2017).

Most European countries defined NEET as youth between the ages of 15 and 24 who are not in employment, education or training and used national data from the Labor Force Survey (LFS) to measure the phenomenon. But there are different definitions and statistical measurements of NEET across countries. For example, in the United Kingdom (Coles et al., 2002; McGregor et al., 2006) and New Zealand (Hill, 2003), the term NEET continues to cover mainly young people. When the term NEET is discussed in Japan, it usually takes into account the wider age range, such as 15-34, while it defines the NEET group as 'people aged 15-34 who are not in the workforce, do not go to school and do not clean at school' (Yuji, 2007 and OECD, 2008a). For Korea, the NEET group “has not been registered in formal education institutions, private institutes for college examinations, or private/public institutes or organizations for employment, not employed, engaged in housework or childcare, unmarried, and age range” (OECD, 2008b and Nam, 2011). From this point of view, in Japan and Korea, the category tends to be associated with a societal phenomenon that is not only geared towards the labor market, but also integrating younger generations into society (Mascherini et al., 2012). Unlike these countries, in New Zealand, it is defined as youth between the ages of 15-19 who are not in education, employment or training for at least one hour per week (Hill, 2003). Although the determination of the NEET age group differs between countries, the general acceptance consists of young people aged between 15-24 or 15-29 who are not in the workforce and are not involved in education and training (Köken and Koç, 2022).

Recently, NEET has become an increasingly important labor market indicator, especially for international organisations. NEET is an indicator that is taken into account and evaluated by policy makers especially in Europe. In fact, it has been declared that it is the most important indicator for defining the situation of young people in the labor market today, as it is the only indicator in the 2030 Sustainable Development Goals Agenda (SDG) signed by the United Nations Member States in 2015 (Mascherini et al., 2012, Kılıç, 2019, Neagu et al., 2021).

As a result of this, although it is very new, researches and publications related to the concept have started. However, there is still a large area in the literature that needs to be explored and understood. In particular, the technological and sociological effects of time, as well as the changes created by globalization, cause the NEET groups to constantly change their profile characteristics, expectations and behavior patterns. In this case, both researchers and policy makers will always need to understand this group and learn about the changes in them. Therefore, the NEET problem will always be an issue that needs to be investigated and solutions found.

In recent years, there has been a certain increase in systematic review, meta-analysis, meta-evaluation and similar studies in social and educational sciences (Yılmaz, 2021). When the databases are examined, although the studies on the concept of “Not in Employment, Education or Training” have increased in recent years, a systematic compilation and meta-analysis, that is, a general bibliometric analysis, has not been done yet.

The only partially done work is the article *Scrutinising the Exceptionalism of Young Rural NEETs: A Bibliometric Review* by Simoes et al. (2022). In this study, they specifically analyzed studies of rural NEETs aged 15 to 24 years. In their work, they aimed to highlight how reports on NEETs have evolved into the main thematic trends found in the literature. However, their findings were that the literature on young rural NEETs is scarce and it is an unstructured field that focuses on different themes over the main concept.

Another bibliometric study is the article titled “A bibliometric study of reference literature on youth unemployment” by Ralph and Arora (2022) on youth unemployment, which is closely related to the concept of NEET. They also made a bibliometric analysis of citations to scientific studies published between 1983 and 2022, also addressing the relationship of NEETs to youth unemployment in the labor market. However, since this analysis is an analysis based on the youth unemployment criterion, two concepts are associated with each other through keywords.

Apart from these two studies, there is no other bibliometric study that includes the concept of NEET. Although these studies are not a complete bibliometric study of the NEET concept, they are preliminary. In this study, we plan to continue where the studies of Simoes et al. (2022) and Ralph and Arora (2021) left off and the scope of the study at the center of the concept of “NEET”.

3. Material and Method

One of the ways of producing scientific knowledge and distributing it to interested parties is to write scientific articles. The way and content of the subjects and the responsibility of always guiding the researchers are part of the work of the article. For this purpose, the orientation of the study topics in the articles is important. Studies examining this aspect of the research produced are bibliometric studies. These studies are especially guides for scientists who will do academic studies. Bibliometric studies are studies that reveal the desired details of the studied area. Especially in the field of social sciences, there has been an increasing volume of work in recent years (Sönmez, 2020). Bibliometrics deals with the quantitative analysis of the data set resulting from statistical examination of certain criteria such as author, subject, cited author, publication information, cited sources of publications or documents.

Based on the statistical data obtained during the bibliometric analysis process, it is possible to determine how the scientific communication process occurs in various disciplines and to reveal the general structure of a particular discipline (Al and Tonta, 2004). Bibliometric analysis aims to reveal the basic dynamics of scientific communication by applying quantitative methods on environments where scientific communication takes place, such as books, journals, symposium/congress proceedings. And again, bibliometric analysis aims to make inferences for a specific discipline, subject area or journal (Yalçın and Esen, 2016). With bibliometric research, on the one hand, the most productive researchers on any subject are determined, and on the other hand, the dimensions of the interaction between them can be visualized and presented in a more understandable way. Likewise, these studies also enable comparisons to be made between countries, institutions or schools on various subjects with a similar approach.

Bibliometric methods allow researchers to base their findings on aggregate bibliographic data produced by other scientists working in the field and to express their ideas through citation, collaboration, and publication. When these data are brought together and analyzed, insights into the structure of the scientific field, its social networks, and current interests can be revealed. (Zupic and Cater, 2015). In addition, giving information about the strengths and weaknesses of the research area also contributes to the researcher (Patra, Bhattacharya, and Verma, 2006). Bibliometric analyzes can be descriptive in the form of determining the number of articles published in a certain time period, or they can be evaluative in the form of citation analysis in order to reveal how an article affects subsequent research (McBurney and Novak, 2002). Since bibliometric reviews are generally studied with large data sets, both the efficiency and effectiveness of the search processes should be considered in order to optimize the results (Hallinger, 2019).

There are two main uses of bibliometric methods: “performance analysis and science mapping”. Performance analysis, in its simplest form, evaluates the research and publication performances of individuals and institutions. Science mapping, also known as bibliometric mapping, aims to reveal the building blocks and dynamics of scientific fields and map the relationship networks between them. Science mapping is a bibliometric analysis method that is based on a quantitative approach in terms of analysis methods and is increasingly used to map the structure and development of scientific fields and disciplines (Zupic and Cater, 2015).

While maps of distance-based, graphic-based and timeline-based approaches used in the context of visualization approach in bibliometric

analyses are used (Van Eck and Waltman, 2014), distance-based and graphic-based approach map types are more remarkable (Garfield, 2009). In graphic-based maps, while the relations between the items in the outputs obtained as a result of the analysis are revealed, no finding of the relationship strength is expressed. On the other hand, in distance-based maps, the distance and closeness of the items in the outputs reveal the strength of the relationship between the items (Van Eck and Waltman, 2009). VOSviewer, an open source software developed in recent years to create, visualize and explore maps based on network data, is one of the programs mentioned. The program provides researchers within the framework of co-authorship, co-citation, bibliographic matching and concept association analyzes based on network, bibliographic and text data of studies carried out in a particular field; It enables the mapping of the literature by performing measurement and analysis in units of analysis such as author, institution, country, document, key concept, abstract and resources. It has been increasingly preferred in the literature as of 2010, due to its functionality, user-friendly interface and reliable outputs (Arslan, 2022).

3.1. Research design

There are two approaches to science or bibliometric mapping, "traditional and modern". In the traditional approach, analyzes are mostly made with the help of tables, while in the modern approach, some software or internet sites are used. One of the important tools in modern approaches is visual mapping parts. Visual mapping technique is essentially one of the approaches and tools used by the science mapping discipline and is important for the visualization of information. Among the software used in science mapping studies, "Citespace, HistCite, SciMAT, Gephi, Sci tool, Microsoft Academic Search, Jigsaw, Carrotssearch, Power Grid Analysis, Action Science Explorer (iOpener), VOSwiver" website "Google Fusion, Google Map, Google Ngram and Google Trend". Apart from these, there are some tools (Yilmaz, 2021).

In this study, VOSviewer 1.6.19 open source software was preferred to perform bibliometric analysis and mapping. VOSviewer makes use of items in networks consisting of scientific publications, scientific journals, researchers, research institutions, countries, keywords and/or terms; Networks are formed through co-authorship, co-occurrence, citation, bibliographic coupling or co-citation links. These links also constitute the basic analysis of the program. In order to create a bibliometric map of a particular area, bibliographic data obtained from databases such as Dimension, Lens, Scopus, Web of Science and reference manager programs such as EndNote, RefWorks and RIS can be used (Van Eck and Waltman, 2022). Study design in this type of systematic literature review involves selecting the most appropriate method to address the research question, such as co-citation analysis, keyword analysis, country-citation or co-occurrence analysis, etc. If we wanted to summarize the iterative scanning and bibliometric analysis process; It begins with selecting appropriate databases to compile bibliometric data. It then involves refining the data to include only the most relevant literature. The next step in the data collection process is using Scopus, WOS, etc. It is data collection that involves summarizing raw data from databases and formatting this data into a more meaningful and manageable format. This is followed by data analysis, which involves selecting the most appropriate software, further elaborating, distilling the data and identifying groups, networks and clusters if relevant to the research. The next step is to select the appropriate visualization method and software to provide a visual summary of the bibliometric data obtained and to obtain bibliometric outputs by running the selected software. Finally, interpreting software outputs involves completing the science mapping process and discussing and interpreting its findings (Al Fozai, 2023). In our study, the same systematic was followed, and the necessary data were first collected from the Web of Science database, and the "refine" process was performed as it should, or the "exclude" process was performed to leave some parameters separately. Web of Science has been used because it is a database indexing effective and reliable international publications. Another reason for choosing the Web of Science database is that it offers a lot of content in the academic literature. Conducting the research in the form of a topic; this is due to the search for the words "NEET", "NEETs" and "Not in Employment, Education or Training" used in the title, abstract and keywords of the studies.

3.2. Data set

In all fields in the Web of Science database, the concept of NEET, which is the main concept in the study, both its clear expression in English, "Not Employment, Education or Training", and another frequently used expression of the concept, NEETs, are associated with each other with the conjunction "or" and the search process is performed. has been made. In this way, as a result of the search made on 26.05.2023, 1351 different scientific studies were categorized in all categories in the Web of Science. The date range of the studies is determined as 1975-2023.

However, the concept of NEET also has different meanings in the fields of medicine (NEET: the name of a protein group) and nuclear chemistry (NEET: The nuclear excitation by electron transition). There are also authors with the surname Neet (Çolak and Koç, 2023b). For this reason, the headings in the field of social sciences were selected in the screening "citation topics meso" criteria and the selected topics are shown in Table 1.

In the distribution of documents according to their types, "article", "early access", "book chapters" and "review article" options are marked and "refined". Since the first studies on "Neet" started in 2002, the studies in 1975 and 1995 were "excluded" and the results were filtered. As a result, 422 scientific studies were found. This obtained data set was taken for analysis in the VOSviewer program with the ".txt" extension.

As can be seen in Figure 1, 422 publications received a total of 2851 citations, and the total number of citations excluding the authors' own publications was 2574. The average of 4614 citations to these studies was 10.93 per publication. The H-index of these 422 studies was determined as 30. As it is known, the h-index deals with how many of the author's publications are cited above a certain value (Al, 2008). As a performance indicator, the H-index of 422 studies on NEET is 30, meaning that there are 30 articles whose total number of citations exceeds 30. This information will be used in the future as critical information in the VOSviewer citation index analysis in our study.

Table 1. Citation Topics Mezo

Citation Topics Meso	Record Count	% of 422	Citation Topics Meso	Record Count	% of 422
6.11 Education & Educational Res.	215	50.948	6.110 Law	3	0.711
6.10 Economics	51	12.085	6.146 Anthropology	3	0.711
6.24 Psychiatry & Psychology	25	5.924	6.153 Climate Change	3	0.711
6.73 Social Psychology	24	5.687	6.185 Communication	3	0.711
6.178 Gender & Sexuality Studies	16	3.791	6.69 Language & Ling.	3	0.711
6.27 Political Science	15	3.555	6.294 Op.Res. & Man. Sci.	2	0.474
6.3 Management	14	3.318	6.303 Sociology	2	0.474
6.263 Agricultural Policy	13	3.081	6.321 Social Reform	2	0.474
6.86 Human Geography	12	2.844	6.115 Sustainability Sci.	1	0.237
6.223 Hosp., Lei., Sport & Tour.	4	0.948	6.256 Religion	1	0.237
6.277 Asian Studies	4	0.948	6.314 Homelessness & H.T.	1	0.237
9.92 Statistical Methods	4	0.948	6.317 Risk Assessment	1	0.237

Figure 1. WoS Analysis Results Screenshot

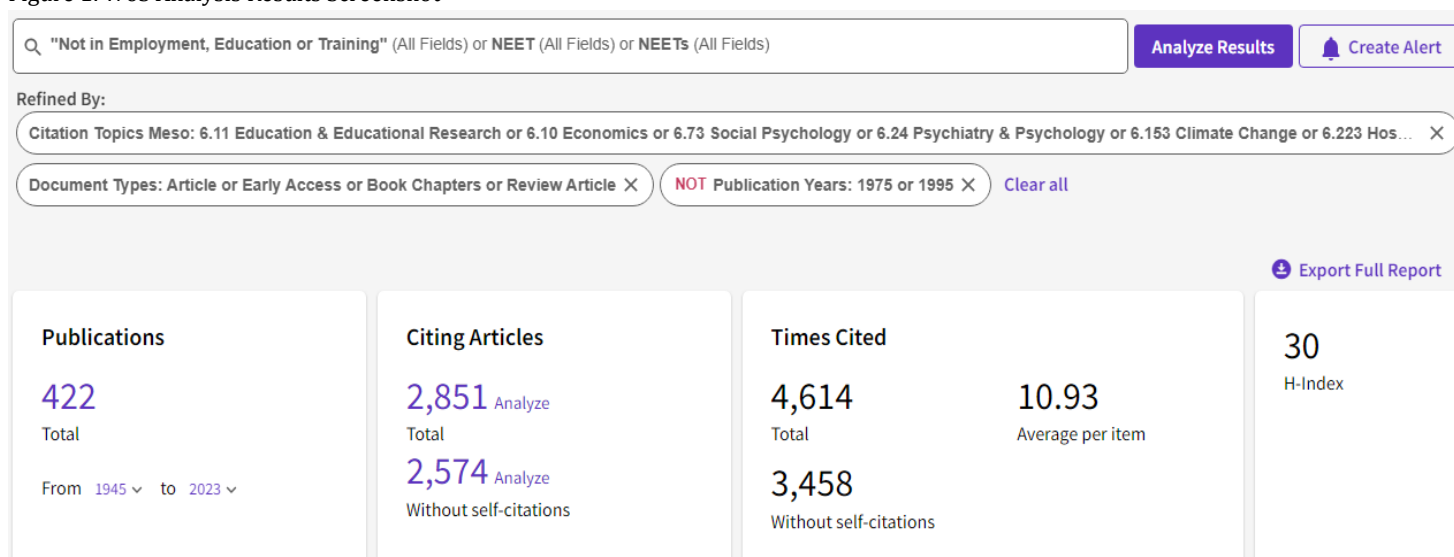


Table 2. Distribution of Publications and Citations by Years

Years	Number of Documents	Number of Citations	Years	Number of Documents	Number of Citations
2002	1	2	2013	21	93
2003	0	0	2014	28	156
2004	0	0	2015	21	140
2005	0	0	2016	23	178
2006	2	5	2017	26	278
2007	3	2	2018	38	358
2008	5	11	2019	41	514
2009	2	11	2020	57	605
2010	8	23	2021	60	768
2011	12	57	2022	56	883
2012	12	51	2023	6	487

Source: Compiled by Authors from Web of Science Analysis Results

Table 2 shows the distribution of these studies by years and the distribution of citations to these studies by years. As can be seen from the table, studies have started to intensify since 2013. The subject has been studied at the highest level for the last three years. Considering the increase in the number of citations, we can see that the subject is given more importance in scientific studies every year. As the 2019-2021 period coincides with the COVID-19 process, it can be expected that the studies on the disadvantaged group will increase. However, contrary to what is thought, three different studies have been conducted examining the effects of the pandemic on NEETs. In the same period, the number of studies related to the global economic crisis experienced in 2008-2009 was not as much as expected, and 10 scientific publications were published examining the effects of the economic crisis on NEETs. The distribution by WoS categories according to the Web of Science search results is also shown in the table below.

Table 3. Web of Science Categories

Web of Science Categories	Record Count	% of 422	Web of Science Categories	Record Count	% of 422
Education Educational Research	105	24.882	Psychology Multidisciplinary	10	2.370
Social Sciences Interdisciplinary	90	21.327	Area Studies	9	2.133
Sociology	51	12.085	Family Studies	9	2.133
Economics	35	8.294	Psychology Applied	8	1.896
Industrial Relations Labor	21	4.976	Public Administration	8	1.896
Environmental Studies	20	4.739	Psychiatry	7	1.659
Public Env. Occup. Health	19	4.502	Psychology Social	7	1.659
Environmental Sciences	16	3.791	Psychology Developmental	6	1.422
Social Work	16	3.791	Business	5	1.185
Green Sustainable Sci. Tech.	15	3.555	Development Studies	5	1.185
Social Issues	11	2.607	Demography	4	0.948
Management	10	2.370	Geography	4	0.948
Political Science	10	2.370	Showing 25 out of 71 entries		

Table 3 shows the distribution of 422 publications written about the definition of NEETs within WOS categories. When the table is examined carefully, it is seen that the subject of Not in Employment, Education or Training is mostly collected under the title of educational research, and interdisciplinary social research comes second. However, economic science publications come in fourth place. Although it is an economic problem, the reason why educational research is at the forefront is due to the fact that educational research centers, especially in England, are engaged in intensive publications and research on the subject. However, considering the diversity of subject areas, it is a clear indication that the NEETs issue is a multidisciplinary subject.

4. Findings

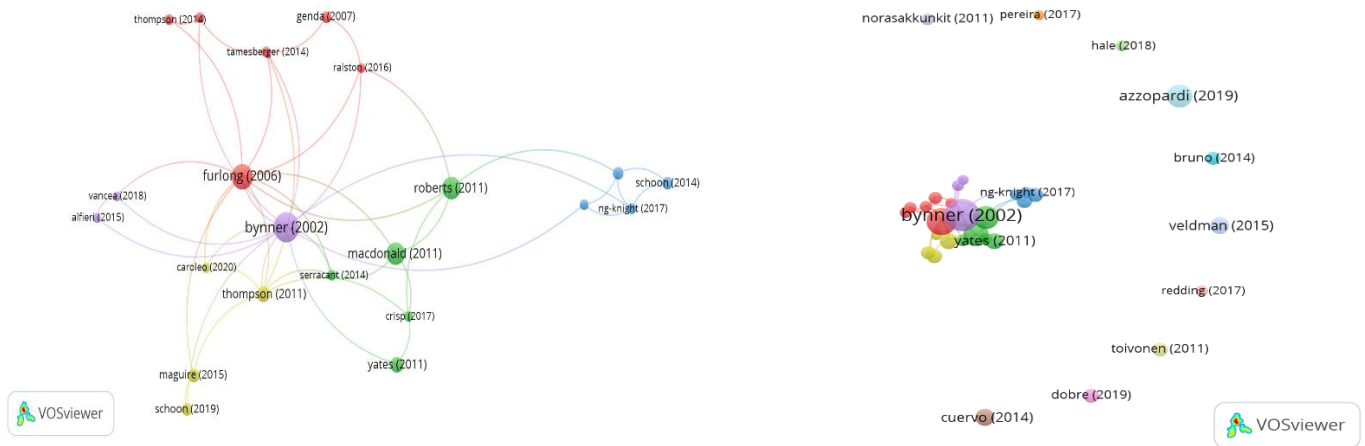
As a result of all these explanations, the data from WoS will be analyzed and mapped with the help of VOSviewer 1.6.19 software. The program offers text mining functionality thanks to special algorithms and works based on clustering. The colors formed in the program show the cluster to which the item belongs (Van Eck et al., 2010). The importance of the item is determined by the size of its circle, and the assignment of the colors of the items is related to the cluster they belong to (Van Eck & Waltman, 2010). The close positioning of the elements indicates that the relationship between them is strong, while their distant positioning indicates that there is not enough relationship between them (Boyacıoğlu & Elmas, 2022). In this study, citation analysis, keyword analysis, country analysis and collaboration analyzes will be made and mapped according to the H-index with the help of software.

Document Citation Analysis and Mapping by H-Index: As mentioned above, it was stated that the H-index of 422 documents related to NEET was 30. In the analysis performed by citation-document matching in the VOSviewer program, when the minimum number of citations the document receives is determined as 30, 32 of 422 documents are matched. In other words, there are 32 studies that meet the lowest 30 citation criteria. Among these studies, the studies of Bynner (2002) and Furlong (2006) constitute the center of the field with 275 and 193 citations, respectively. The mapping of documents based on citation analysis is shown in the figure below. The software established and mapped strong relationship links in 22 of 32 studies. The mapping also visualized the time dimension of the studies. Due to the intensity of Bynner (2002) and Furlong (2006) studies on the map, the larger colored spheres are shown, while the spheres representing other publications become smaller as the effect level decreases. These two studies form the center of the network in mapping.

In this mapping, the interaction of 22 studies in the link with each other from the first 32 studies cited in the H-index value among 422 studies were mapped. These studies are also the studies with the highest interaction power in the whole field. Bynner (2002), Furlong (2006) and Thompson (2011) studies are at the center of mapping. These 22 studies also form the basis of the literature on NEET. However, the map on the left in Figure 2 shows all 32 studies. 10 independent publications from 22 interrelated studies, which are located around the publications

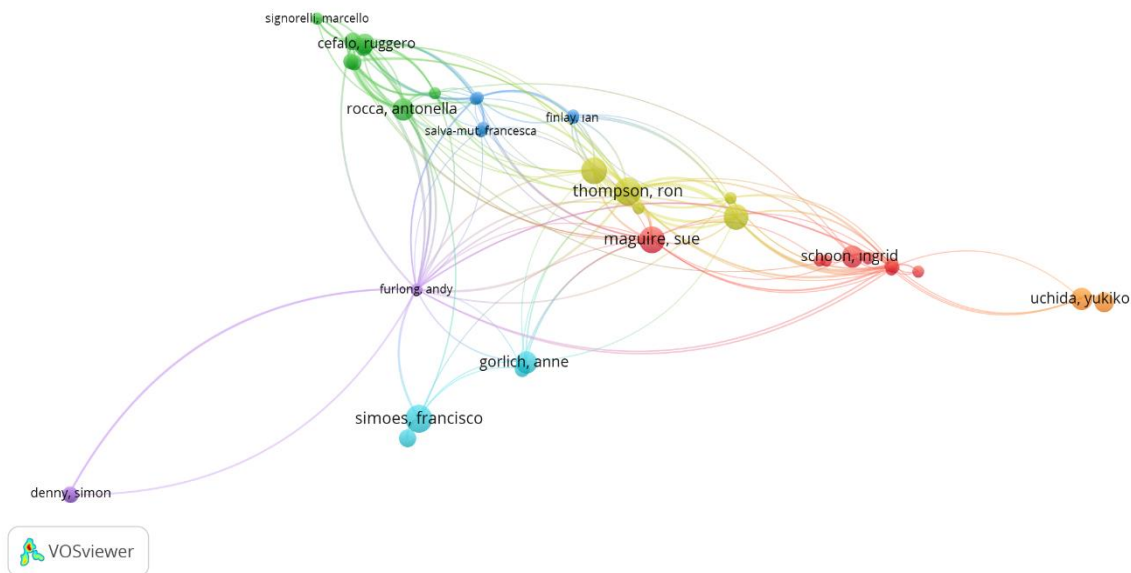
in the center and meet the screening criteria of at least 30 citations per document, were mapped together. If we had done this analysis to the citation average of 422 studies, which is 10.93, that is, 11 citations, then there would be a match in 117 out of 422 documents.

Figure 2. H-index Citation Link Map



Citation Author Analysis and Mapping: In the citation analysis made according to 875 authors, the minimum number of documents was determined as 2 and the minimum number of citations as 30. The threshold value in these criteria is met by 45 authors. In order to make the map more understandable, a mapping was made among 39 authors with high total link strength and meeting the threshold value. While determining the critical numbers, it was taken into account that the H-index was 30 and the average number of researchers per document in 422 studies was 2. According to these criteria determined in Figure 3, the citation analysis among the authors was mapped.

Figure 3. Citation-Author Analysis Link Map



The 39 authors shown in Figure 3 are shown in 7 different clusters. The distribution of the authors according to the clusters is also given in Table 4. The red cluster, in which Bynner is located, constitutes the center of NEET researches according to the determined criteria and is called cluster 1. Researchers who establish a strong network of relations with each other are in the first three clusters. In particular, we can see from this network map that researchers in the red and green clusters also form the center of NEET studies and direct the field. The cluster with the least impact and interaction on the network map is Cluster 7, which is colored orange. The interaction and influence level of the authors in this cluster is the least compared to the other clusters. However, a dense network of interactions between Cluster 1 and Cluster 4, highlighted in yellow, is clearly visible on the map.

Table 4. VOSviewer Citation-Author Cluster

CLUSTER 1	Author	CLUSTER 2	Author	CLUSTER 3	Author
	Feng, Zhiqiang		Kazepov, Yuri		Tamesberger, Dennis
	Ralston, Kevin		Scandurra, Rosario		Finlay, Ian
	Dibben, Chris		Rocca, Antonella		Sheridan, Marion
	Everington, Dawn		Cefalo, Ruggero		Quintana-Murci, Elena
	Schoon, Ingrid		Mazzocchi, Paolo		Salva-Mut, Francesca
	Dickens, Lisa		Quintano, Claudio		Bacher, Johann
	Bynner, John		Signorelli, Marcello		
	Dorsett, Richard		Caroleo, Floro Ernesto		
	Sabates, Ricardo				
Maguire, Sue					
CLUSTER 4	Author	CLUSTER 5	Author	CLUSTER 6	Author
	Holte, Bjorn Hallstein		Denny, Simon		Marta, Elena
	Thompson, Ron		Hazenberg, Richard		Katznelson, Noemi
	Beck, Vanessa		Seddon, Fred		Simoes, Francisco
	Russell, Lisa		Furlong, Andy		Gorlich, Anne
Simmons, Robin					
			CLUSTER 7	Author	
				Norasakkunkit, Vinai	
				Uchida, Yukiko	

Although they met the specified criteria, hammerton, viner, bultmann, reijneveld, toivonen, veldman were not included in any clustering in this analysis. In other words, the publications of these researchers do not establish any connection with the clusters that make up the center. Despite their relatively high number of citations, their impact levels are also very low as they do not interact. We can think of them as independent studies from the studies that make up the NEET center. Table 5, which shows the level of attribution and influence of these authors, is compiled from the outputs obtained from the VOSviewer software below.

Table 5. Authors Not Connected to Clusters

Authors	Documents	Citation	Total Link Strength
Hammerton, Gemma	2	32	1
Viner, Russell M.	2	179	1
Bultmann, Ute	2	80	0
Reijneveld, Sijmen A.	2	80	0
Toivonen, Tuukka	2	65	0
Veldman, Karin	2	80	0

Country Citation Analysis and Mapping: The number of citations is considered as an indicator of the quality and effectiveness of a publication, as well as the scientific and technological activity of the country to which it is affiliated. (Karasözen et al., 2011). Seeing which countries come to the fore in references to the concept of NEET provides important clues to researchers in terms of reflecting research collaborations and networks. In addition, the performances of the countries related to the chosen subject also indicate the extent to which they shape the concept scientifically. In Table 6 below, there is a table showing the 29 most active countries out of 64 producing scientific work in the field of NEET and their connection strength along with the number of research and citations.

As it can be understood from the table, England is in the first place with 133 studies from 29 active countries in the NEET literature. The total number of citations taken to these openings is 2323. We can say that it is the result of the emergence of the concept in England and that British researchers are closer to the subject for this reason. It also constitutes the center of the literature as the first publications to be scanned when researches on other researchers or similar subjects are conducted. However, among the top four countries, Italy, Spain and the USA are the countries that feel the NEET issue as a problem in their countries. For this reason, they stand out as the countries that do the most work compared to other countries. Especially Italy and the USA are countries above the OECD average in terms of NEET rates. Based on this observation, it would be natural to expect countries that have a strong sense of the NEET problem to do more research on this issue.

Table 6. Intercountry Document-Citation Table

Country	Documents	Citations	Total Link Strength	Country	Documents	Citations	Total Link Strength
England	133	2323	509	Netherlands	10	100	28
Italy	47	302	274	Norway	10	231	52
Spain	37	366	182	Austria	8	118	84
USA	27	437	56	Belgium	8	198	10
Germany	22	211	80	PRC	8	18	11
Denmark	16	99	50	Romania	8	70	31
South Africa	16	93	36	Ireland	8	58	48
Australia	14	323	56	Bulgaria	7	20	23
Portugal	14	93	87	Poland	7	14	27
Finland	13	113	66	South Korea	7	36	18
Scotland	13	349	216	Croatia	6	24	9
Japan	12	198	39	France	6	15	19
Russia	12	29	12	Greece	5	16	14
Sweden	12	105	69	Switzerland	5	20	0
Turkey	11	29	22				

Table 7. Country Clustering by Country-Citation Analysis

CLUSTER 1	Bulgaria	CLUSTER 2	Denmark	CLUSTER 3	Australia	CLUSTER 5	France
	Croatia		England		Austria		Germany
	Ireland		Finland		Belgium	CLUSTER 6	Netherlands
	Italy		Norway		Spain		Sweden
	Portugal		Poland	CLUSTER 4	Japan	CLUSTER 7	CLUSTER 8
	Romania		Scotland		Russia		
	Turkey		South Africa		South Korea	PRC	Greece
			USA				

Table 6 was prepared from the VOSviewer software. The network map that emerged as a result of the analysis is shown in Figure 4. Again, the clusters seen in the network map are shown in Table 7. While creating the network map with the scientific mapping analysis technique, the threshold value was determined so that the minimum number of publications belonging to a country would be “5”. The strength of the bibliographic matching links of each of the 29 countries meeting the threshold value with other countries was calculated and the map was created by choosing the countries with the highest link strength. In this process, a total of eight clusters were obtained and the green cluster (Cluster 2), where England is the core of the studies, and the red cluster (Cluster 1), where Italy is a separate center, formed the center of the NEET literature. While these two countries are the center of their own clusters, they are also seen as the center of all NEET literature. Two other important centers, Spain and the USA, are both the center of their own clusters and an important focal point in the literature. Together with the other countries in these four country clusters at the centre, they dominate the NEET literature.

To date, 133 scientific studies have been published from England, and the fact that these studies have received 2323 citations in total and the calculation of the impact power of 509 causes this country to be at the center of the literature. As we mentioned before, the emergence of the concept in England has a significant impact. Due to the fact that Italy is experiencing the NEET problem with the highest rate among OECD countries, it has directed researchers to examine this concept and has made it another center of the literature. 47 studies of Italian researchers received a total of 302 citations, and the total link strength, which explains the power of influence in the literature, was calculated as 274. However, among these eight clusters and 28 countries, the two countries that have the least impact with the work of other countries are the PRC and Greece. These two countries had little interaction with other countries' publications, so they remained outside the center.

Mapping Analysis Based on Bibliographic Matching: Citing one or more sources in the reference list is called bibliographic matching. Bibliographic matching is mostly used to complete the citation-author analysis (Boyacıoğlu and Elmas, 2022). To put it briefly, bibliographic matching occurs if two documents quote another third study (Merigó et al., 2016).

Mapping Analysis Based on Bibliographic Matching by Authors was applied just like the criteria in the citation-author analysis. Again, according to 875 authors, the minimum number of documents in the analysis was 2; the minimum number of citations has been determined as 30 and these thresholds are met by 45 authors, as in other citation-author analysis. A total of 7 clustered mapping was created according to 45

authors with high total connectivity and meeting the threshold value. At the same time, this analysis can be seen as a proof of citation-author analysis in a way.

Figure 4. Country-Citation Analysis and Mapping

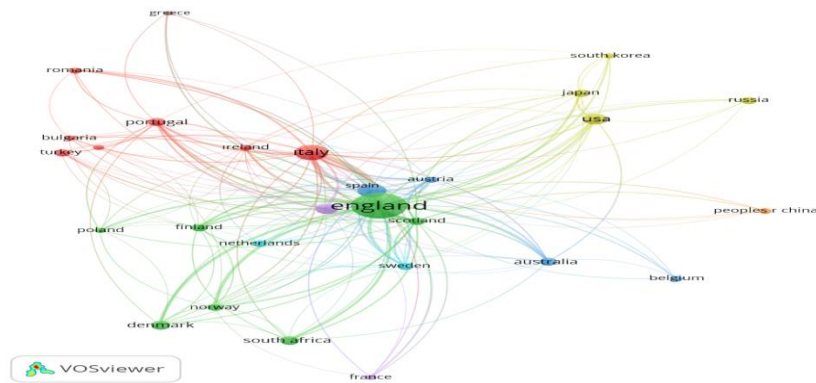
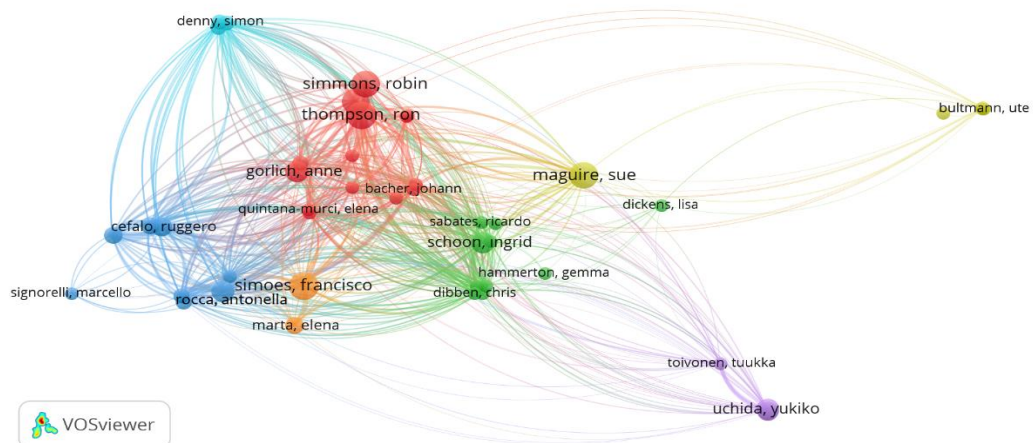


Table 8. Bibliographic Matching Author Clustering Table

CLUSTER 1	Bacher, Johann	CLUSTER 2	Bynner, John	CLUSTER 3	Caroleo, Floro Ernesto	
	Beck, Vanessa		Dibben, Chris		Cefalo, Ruggero	
	Finlay, Ian		Dickens, Lisa		Kazepov, Yuri	
	Furlong, Andy		Dorsett, Richard		Mazzocchi, Paolo	
	Gorlich, Anne		Everington, Dawn		Quintano, Claudio	
	Holte, Bjorn Hallstein		Feng, Zhiqiang		Rocca, Antonella	
	Katznelson, Noemi		Hammerton, Gemma		Scandurra, Rosario	
	Quintana-Murci, Elena		Ralston, Kevin		Signorelli, Marcello	
	Russell, Lisa		Sabates, Ricardo			
	Salva-Mut, Francesca		Schoon, Ingrid		CLUSTER 5	CLUSTER 6
CLUSTER 4	CLUSTER 7	Norasakkunkit, Vinai		Denny, Simon		
		Toivonen, Tuukka		Hazenberg, Richard		
		Uchida, Yukiko		Seddon, Fred		
		Marta, Elena				
		Simoes, Francisco				

Figure 5. Mapping Based on Bibliographic Matching



The central cluster shown in the figure is called cluster 1 in red. The authors in this cluster appear as a cluster of researchers who do research in the field of NEET and are related to each other. In Table 8, all authors belonging to the seven clusters are visualized by sorting as obtained from the VOSviewer script. At the same time, it can be said that the researchers in this cluster, which has high network power, are researchers who keep the concept of NEET on the agenda intensively in terms of both the number of publications and the number of citations. However, Cluster 1 shown in red, Cluster 2 shown in green, and Cluster 3 shown in blue have a very high scientific interaction with each other and are just as effective as Cluster 1. So much so that 7 of the top ten researchers with a scientific impact network are in Cluster 3. Therefore, according to the bibliographic matching analysis, we can state that these three clusters constitute the NEET center.

It has already been noted that bibliographic matching analysis is used to highlight the number of common references to an article. The bibliographic matching analysis proposed by Kessler (1963) groups articles according to the citations shared by the two articles. This analysis is one of the most advantageous techniques for grouping articles by research focus (Jarneving, 2017, Sipahi and Genç, 2022). Research focuses can be clearly seen in the clusters formed in the figure above. In this sense, Thompson, Simmons and Gorlich in cluster 1 in red, Schoon in cluster in green, Cefalo and Rocca in cluster 3 in blue, Maguire in cluster 4 in yellow, cluster 5 in purple. Uchida in 13, Denny in light blue cluster 6 and Simoes in orange cluster 7 are the centers of research.

Table 9. Authors by Analysis Based on Bibliographic Matching

	Author	Doc	Cit	TLS*		Author	Doc	Cit	TLS		Author	Doc	Cit	TLS
1	Cefalo, R.	5	56	1577	16	Seddon, F.	3	40	810	31	Marta, E.	4	43	310
2	Kazepov, Y.	4	56	1543	17	Simoes, F.	10	87	800	32	Bynner, J.	2	64	308
3	Thompson, R.	10	219	1527	18	Caroleo, F. E.	2	32	739	33	Sabates, R.	2	82	261
4	Rocca, A.	6	60	1430	19	Gorlich, A.	6	61	715	34	Toivonen, T.	2	65	251
5	Scandurra, R.	4	45	1396	20	Bacher, J.	2	52	687	35	Finlay, I.	2	45	185
6	Simmons, R.	9	153	1101	21	Tamesberger, D.	2	52	687	36	Sheridan, M.	2	45	185
7	Russell, L.	8	141	1076	22	Schoon, I.	6	227	579	37	Furlong, A.	2	205	184
8	Mazzocchi, P.	3	49	908	23	Maguire, S.	9	132	559	38	Bultmann, U.	2	80	183
9	Quintano, C.	3	49	908	24	Uchida, Y.	6	119	503	39	Reijneveld, S. A.	2	80	183
10	Dibben, C.	2	43	856	25	Norasakkunkit, V.	5	106	499	40	Veldman, K.	2	80	183
11	Everington, D.	2	43	856	26	Katznelson, N.	3	34	475	41	Dorsett, R.	2	30	88
12	Feng, Z.	2	43	856	27	Holte, B. H.	2	38	442	42	Signorelli, M.	2	51	54
13	Ralston, K.	2	43	856	28	Quintana-Murci, E.	2	35	373	43	Dickens, L.	2	32	24
14	Denny, S.	3	40	810	29	Salva-Mut, F.	2	35	373	44	Hammerton, G.	2	32	9
15	Hazenberg, R.	3	40	810	30	Beck, V.	2	30	336	45	Viner, Russell M.	2	179	5

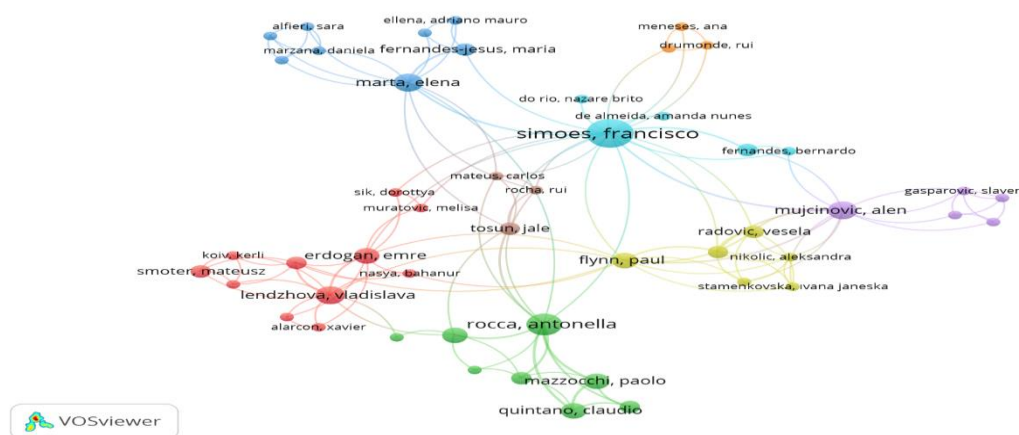
*TLS: Total Link Strength

The colors in table nine represent the clusters in table eight. It shows the number of citations that researchers have received according to the number of documents they have published. The studies published by these studies are ranked from highest to lowest according to TLS data showing the level of bibliographic match with each other. The studies with the highest total network power were realized in the studies of the researchers in the blue and red clusters, as can be seen from the table. In other words, these two cluster researchers direct the concept of NEET, and new studies are guided by the studies in these clusters.

Co-Authority Analysis: Researchers working together in the NEET literature and citation analysis criteria of their studies were made as a minimum of two authors and a minimum of one citation. To explain the reason for this, the criteria to be investigated are kept at minimum values because it is an analysis to understand whether researchers on NEET are a worthwhile subject to work with. For a study to be a co-authored study, the first threshold is for an author to have made 1 study with at least two co-authors. This criterion demonstrates the authors' willingness to collaborate on NEET at least once. In addition, it is expected that the publication will have received at least one citation, since the citation status is the indicator of the effectiveness of the study. Considering that the historical process of the NEET field is also very new, mapping

with minimum values will be a more efficient analysis. The mapping obtained from the VOSviewer software according to these threshold values is shown in Figure 6.

Figure 6. Co-Authority Analysis and Mapping



A total of 422 studies published by 875 authors, according to the threshold values, 734 authors collaborated even if at least one publication. However, among 734 authors who passed the critical threshold in Figure 6, 49 matches with the strongest network communication were gathered in 8 clusters. Authors matching in these eight clusters have the most effective networking power in co-authoring with each other among all authors. Lendzhova, Erdoğan, Simoes, Flynn, Rocca, Mujcinovic, and Marta are both the center of their clusters and the strongest network power, while also being a communication bridge between clusters.

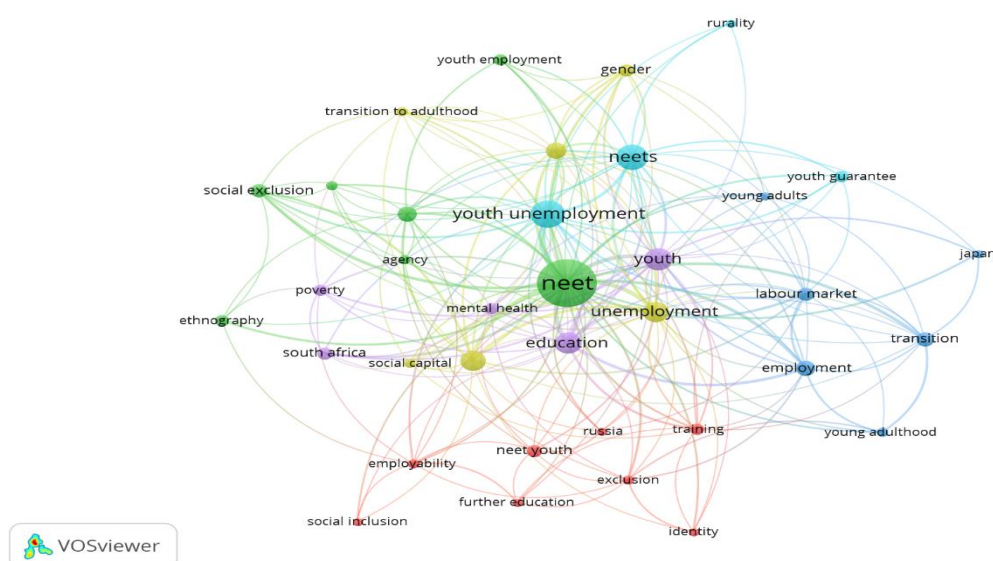
Co-occurrences Analysis and Keyword Mapping: In the co-occurrences analysis, the keywords used in the studies are examined. In this analysis, a network map was created showing the cooperation between the keywords used in NEET-oriented studies. For 1126 keywords, the minimum number of occurrences is set to 5, and 36 keywords meet the threshold value according to these criteria.

Table 10. Keyword Clustering

CLUSTER 1	Employability(7)(15)	CLUSTER 2	Agency(6)(8)	CLUSTER 3	Employment(18)(40)
	Exclusion(7)(17)		Early School Leaving(6)(8)		Japan(5)(10)
CLUSTER 6	Further Education(5)(7)	CLUSTER 5	Neet (163)(203)	CLUSTER 4	Labour Market(14)(28)
	Identity(5)(9)		Social Exclusion(14)(24)		Transition(15)(26)
	Neet Youth(11)(11)		Youth Employment (56)(79)		Young Adulthood
	Russia(5)(10)		Youth Transitions(18)(26)		Young People(30)(48)
CLUSTER 6	Social Inclusion(5)(5)	CLUSTER 5	Education(32)(63)	CLUSTER 4	Gender(11)(24)
	Training(9)(21)		Mental Health(9)(19)		School-to-work-transit(19)(36)
	Needs (47)(55)		Poverty(9)(17)		Social Capital(6)(12)
CLUSTER 6	Rurality(5)(5)	CLUSTER 5	South Africa(11)(19)	CLUSTER 4	Transition to Adulthood(7)(13)
	Youth Guarantee(10)(13)		Youth(35)(66)		Unemployment(30)(67)
	Youth Unemployment(9)(10)				Young Adults(5)(11)

As a usual result, the keyword “neet” appears to be the most frequently used concept, with 163 matches. The terms “youth unemployment” (56), “needs”(47), “youth”(35) and “education”(32) are seen as the other keywords that match the most. The table below shows all of these keywords, how many times they are matched, and the total link strength these keywords create in the network. As can be seen in Table 10, the keywords that match the most are classified in 6 clusters. The first parenthesis next to the keywords shows the frequency of matches for the keywords, and the second parenthesis shows the total link strength of the keywords. As the minimum number of occurrences, which is an important determining criterion in determining the analysis, decreases, the match positions of these keywords also increase. However, the network map of the analysis made according to the number of 5, which is the threshold criterion, is shown in figure 7.

Figure 8. Keyword Cloud



In this mapping, which emerged from VOSviewer's co-occurrence and keywords matching, the communication networks between 6 clusters formed by 36 keywords in total are seen in the figure. The keyword "neet" is in the center of the map and other keywords are seen as the most matching concept. "youth unemployment", "neets", "youth", "education", "unemployment", "young people" are the other terms with the highest number of matches seen on the map. They are the most common concepts with other keywords to explain the literature or to establish connections between concepts.

5. Conclusion

Although the concept of NEET is a very new concept, when the literature is examined, it is certain that it is an important problem and issue that should be addressed in a way that includes other social sciences related to economics. For this reason, it is extremely important for policy makers to design and implement solution models in accordance with the findings of the researchers. Especially today, rapidly developing technology and processes such as 'Digital Transformation' and 'Fourth Industrial Revolution', which are now loudly spoken, make the problem of how to integrate young people in NEET into labor markets. (Colak and Koç, 2023a).

Although the concept is still new in its historical process, it cannot be ignored that an important workforce and population problem needs to be investigated in every aspect for policy makers. Although the researches emerging at this stage contribute to the concept of NEET, the field has not reached the saturation point in research.

This situation supports the conclusion we reached by the determinations reached in the bibliometric research conducted by Simoes et al. According to Simoes et al. (2022), although the NEET field, which is in its infancy, is in demand by researchers in the literature, it is obvious that there are many dimensions that need to be written and discussed. The concept of NEET, which connects with themes such as employment, education, health and psychology, has been at the center of scientific research as a niche concept in this sense (Simoes et al., 2022).

It is clear that the field of study of NEET is a partially new concept in academia and since the publications on this subject date back to the 2000s, the field needs more study based on a 20-year history of literature. It is clear that the contribution of researchers to this field will also be a reference for policy makers who have a serious NEET problem in their region. Since the field of study draws a multidisciplinary image, it is necessary not to ignore the advantages of collaborating with researchers from different fields.

The citation analyzes and mappings show that as new studies on the concept of NEET are published, the subject will deepen and the influence network will increase. However, in order for this to happen, new researchers on the subject should also make scientific contributions. The fact that the concept represents young people between the ages of 15-24 and is a concept that is constantly changing due to generational transitions will naturally lead to continuous differences, new problems, new understandings and search for solutions on the timeline of NEETs. Therefore, it is important to make new researches by associating all kinds of scientific themes and fields with the NEET people. It can be expected that a new bibliometric analysis to be carried out after the studies to be carried out in this way will reveal a more in-depth NEET concept.

References

Al Fozai, M. T. (2023). Identifying the Absence of Knowledge Using Bibliometric Analysis: The Case of the "Bad Behavior Index". *International Journal of Sustainable Development & Planning*, 18(4).

- Al, U. (2008). Bilimsel Yayınların Değerlendirilmesi: h-endeksi ve Türkiye'nin Performansı. *Bilgi Dünyası*, 9(2), 263- 284.
- Al, U. & Tonta, Y. (2004). Atf Analizi: Hacettepe Üniversitesi Kütüphanecilik Bölümü Tezlerinde Atf Yapılan Kaynaklar. *Bilgi Dünyası*, 5(1), 19-47.
- Arslan, E. (2022). Sosyal Bilim Araştırmalarında Vosviewer ile Bibliyometrik Haritalama ve Örnek Bir Uygulama. *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 22(Özel Sayı 2), 33-56.
- Boyacıoğlu, E. Z., & Elmas, Ç. (2022). Ekonomi ve Turizm Odaklı Literatür: Bibliyometrik Bir Analiz. *Turizm Ekonomi ve İşletme Araştırmaları Dergisi*, 4(2), 133-147.
- Bruno, G. S., Marelli, E., & Signorelli, M. (2014). The Rise of NEET and Youth Unemployment in EU Regions After the Crisis. *Comparative Economic Studies*, 56, 592-615.
- Bynner, J., & Parsons S., (2002). Social Exclusion and the Transition from School to Work: The Case of Young People Not in Education, Employment, or Training (NEET), *Journal of Vocational Behavior*, 60, 289-309
- Coles, B., Hutton, S., Bradshaw, J., Craig, G., Godfrey, C. & Johnson, J. (2002). Literature Review of the Costs of being 'Not in Education, Employment or Training' at Age 16-18. *London: Department for Education and Skills*, Research Report 347.
- Çolak, K. & Koç, S., (2023a). Türkiye ve AB Aktif İşgücü Piyasası Neet'lerin Mevcut Durum Analizi ve Çözüm Politikaları, International Marmara Social Sciences Congress (Imascon Spring) 2023 Proceedings Book.
- Çolak, K. & Koç, S., (2023b). NEET'ler ile İlgili Ekonomi ve İlişkili Alanlardaki Yazın Taraması, International Marmara Social Sciences Congress (Imascon Spring) 2023 Proceedings Book.
- Furlong, A. (2007). The Zone of Precarity and Discourses of Vulnerability: NEET in The UK, *Journal of Social Sciences and Humanities*, No. 381, pp. 101-121.
- Güngör, E. (2019). Zamanı Saatte Yaşamak; Zaman Kullanımı Editör: Arun, Ö. Krizler ve Yaşlanma: 21. Yüzyılda Demografik Dönüşümün Yansımaları (s.79-97). Antalya: Yaşlanma Çalışmaları Derneği Yayınları.
- Hallinger, P. (2019). Science Mapping the Knowledge Base on Educational Leadership and Management from the Emerging Regions of Asia, Africa and Latin America, 1965-2018. *Educational Management Administration & Leadership*, 48(2), 209-230.
- Hill, J. (2003). Young People Not in Education, Training, or Employment: Key Indicators. New Zealand: Ministry of Social Development.
- İşık, C. (2013). The importance of creating a competitive advantage and investing in information technology for modern economies: An ARDL test approach from Turkey. *Journal of the Knowledge Economy*, 4, 387-405.
- Karasözen, B., Bayram, Ö. G., & Zan, B.U. (2011). WoS ve Scopus veri tabanlarının karşılaştırması. *Türk Kütüphaneciliği*, 25(2), 238-260.
- Kılıç, Y. (2014). Young People in Turkey Who are not in Education, Employment or Training (NEET). *Eğitim ve Bilim*, 39(175).
- Köken, M., & Koç, S., (2022). Türkiye'de Bölgesel Neet Verilerinin Mekansal Panel Veri Analizi. *Journal of International Management Educational and Economics Perspectives*, 10(2), 113-129.
- Mascherini, M., Salvatore, L., Meierkord, A., & Jungblut, J. M. (2012). NEETs-Young People not in Employment, Education or Training: Characteristics, Costs and Policy Responses in Europe, Luxembourg: Publications Office of the European Union.
- Maynou, L., Ordóñez, J., & Silva, J. I. (2022). Convergence and Determinants of Young People Not in Employment, Education or Training: An European Regional Analysis. *Economic Modelling*, 110, 105808.
- McBurney, M. K. & Novak, P. L. (2002). What is Bibliometrics And Why Should You Care? *Proceedings. IEEE International Professional Communication Conference* (pp. 108-114). Portland, OR, USA, 17-20 September 2002. <https://ieeexplore.ieee.org/document/1049094>.
- McGregor, A., Clelland, D. And Reid, J. (2006), Evaluation of Measurement Options for Those Aged 16-19 Not in Employment, Education or Training (NEET), Scottish Executive, Edinburgh.
- Merigo, J. M., Cancino, C. A., Coronado, F. & Urbano, D. (2016). Academic research in innovation: A country analysis. *Scientometrics*, 108(2), 559-593.
- Nam, J. (2011). Not in Education, Employment, or Training (NEET) in Korea: Status and Trends. *e-Labor News* No. 111:1- 10.
- Neagu, G., Berigel, M., & Lendzhova, V. (2021). How Digital Inclusion Increase Opportunities for Young People: Case of Neets from Bulgaria, Romania and Turkey. *Sustainability*, 13(14), 7894.
- OECD (2008a), Jobs for Youth: Japan, OECD, Paris.
- OECD (2008b), Jobs for Youth: Korea, OECD, Paris.
- Patra, S. K., Bhattacharya, P. & Verma, N. (2006). Bibliometric Study Of Literature On Bibliometrics. *DESIDOC Journal of Library & Information Technology*, 26(1), 27- 32.
- Ralph, A., & Arora, A. (2022). A Bibliometric Study Of Reference Literature On Youth Unemployment. *Journal of Enterprising Communities: People and Places in the Global Economy*, (ahead-of-print).
- Simões, F., Erdoğan, E., Muratović, M., & Sık, D. (2022). Scrutinising The Exceptionalism of Young Rural Neets: A Bibliometric Review. *Youth & Society*, 54(2_suppl), 8S-28S.
- Sönmez, Ö. F. (2020). Bibliometric Analysis of Educational Research Articles Published in The Field of Social Study Education Based on Web of Science Database. *Participatory Educational Research*, 7(2), 216-229.
- Tolgay, C. & Çakır, Ö. (2022). Ne Eğitimde Ne İstihdamda Olan Gençlerin Genç İşsizliğine Yönelik Algıları Üzerine Bir Araştırma . *Dokuz Eylül Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 24 (4) , 1680-1707 . DOI: 10.16953/deusosbil.1121889

- Van Eck, N. J., & Waltman, L. (2009). Software Survey: Vosviewer, a Computer Program for Bibliometric Mapping. *Scientometrics*, 84, 523-538.
- Van Eck, N. J., Waltman, L., Dekker, R., & Van Den Berg, J. (2010). A Comparison of Two Techniques for Bibliometric Mapping: Multidimensional Scaling and VOS, *Journal of the American Society for Information Science and Technology*, 61(12), 2405-2416.
- Van Eck, N., & Waltman, L. (2010). Software Survey: Vosviewer, a Computer Program for Bibliometric Mapping, *Scientometrics*, 84(2), 523-538.
- Van Eck, N.J. & Waltman, L. (2022). Crossref Metadata Statistics [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.6803963>
- Yalçın, H. & Esen, M. (2016). Bilimi Ölçümlemek: Bilimin Metrisi. İçinde H. Yalçın, M. Esen, S. Burmaoğlu ve M. F. Sorkun (Edt.), Bilim, Teknoloji ve İnovasyon Çağında Araştırma Üniversitesi Olmak (ss. 101-128). Ankara: Pegem Akademi.
- Yılmaz, K. (2021). Sosyal Bilimlerde ve Eğitim Bilimlerinde Sistematik Derleme, Meta Değerlendirme ve Bibliyometrik Analizler. *Manas Sosyal Araştırmalar Dergisi*, 10(2), 1457-1490.
- Yuji, G. (2007). Jobless Youths and the NEET Problem in Japan. *Social Science Japan Journal*, 10 (1), 23-40.
- Zupic, I. & Cater, T. (2015). Bibliometric Methods in Management and Organization. *Organizational Research Methods*, 18(3), 429-472.

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