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Student Organisations: State of the Art and Perspectives for Future Research

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Abstract

Theoretical background: The management of student organisations is still unexplored and full of issues requiring an in-depth analysis. Along with the development and unification of management processes at universities, matters related to students' pro-academic activities assume new significance and often require revision and proper ordering.

Aim of the article: This article presents the results of the bibliometric analysis of developing issues related to student organisations.

Research methods: The primary reference points are journals and publications released in the Web of Science database in 1900–2022. The obtained data were used to perform bibliometric analysis, including the number of publications, authorship and co-authorship, citations, publishing journals, thematic categories, institutions, countries and keywords. The research drew from 506 publications related to the analysed subject, whose citation frequency amounted to 4,548.

Main findings: The bibliometric analysis performed showed that the priority of the issues addressed about student organisations is not only the development and improvement of their classifications but also broadly defined ethnic groups and their membership in relevant bodies. There was also no shortage of issues related to LGBT-oriented groups as centres for self-acceptance. However, other essential elements, such as the management of student organisations, are missing from the topics covered. This research gap in the administrative field reveals the extent to which the topic of student organisations is a topic and area that is underexplored and unexplored.

Introduction

Along with the introduction of organisational changes at universities, the aim of which was to provide an increasingly better education tailored to the requirements of the labour market, an important aspect became the role of student organisations (Mirica, 2015; Smużewska, 2015). Student organisations provide an opportunity to improve competencies informally, especially when the formal study programme is insufficient, and it is necessary to extend students' skills, e.g. social competencies in technical faculties. Borges et al. attracted attention to the need to achieve personal satisfaction and a sense of responsibility for the community in which one lives (Borges et al., 2017; Jakubiak, 2017). Other researchers researched raising social competencies through membership in student organisations (Zeeman et al., 2019; Sessa et al., 2017; Colelli et al., 2019). One can notice researchers' interest in this issue because an increasingly demanding labour market implies in young people a belief that without additional competencies, they will not achieve their intended goal (Martindale et al., 2017; Colelli et al., 2019; Claiborne et al., 2020). Different studies have developed such theses, e.g. Kwiatkowski and his team (2019) carried out research assessing the impact of a student organisation (Pharmacy Student Ambassadors) on the entrepreneurial attitude.

Polish provisions of the Act of 20 July 2018 – Law on Higher Education and Science: "Students have the right to associate in university student organizations" (chapter 4, Art. 111 point 1) made it possible to establish and develop student organisations and those students involved in the academic scientific movement. The number of student organisations and their internal diversity concerning the objectives pursued and the

structure or management cause problems with supervising them from the university level. In this case, determining procedures applicable to student organisations (Librera et al., 2005) is essential in unifying the processes relevant at universities. This applies to the scientific and administrative spheres because, from the point of view of a properly functioning entity, each party should know its rights and obligations (Abunamah, 2011; Alotaibi & Alarifi, 2020). Therefore, such a state of affairs became a basic premise for undertaking research on identifying management models of student organisations and, in the first place, identifying scientific publications in which these or similar topics were undertaken (Field et al., 2018; Yang et al., 2009).

This study aims to present the results of the bibliometric analysis of the issue related to student organisations discussed in published scientific research. The study's specific objective was to identify publications taken from the Web of Science database from the field of activity of student organisations focused on topics related to their management. The Web of Science database was selected for analysis as a scientifically well-established and transparent database of scientific publications (Araya-Castillo et al., 2021).

Literature review

The essence of the analysis was to compare available literature on issues related to student organisations. An additional motivation for the work was that, over the past decades, this type of research has not been carried out. This may represent a wide range of possibilities. There is also a lack of information in the available literature that encourages and suggests this analysis. However, due to the development of the student academic movement, especially over the 20th and 21st centuries, the performance of research nevertheless becomes a reasonable basis for delving into the topic and verifying the correlations that exist with each other regarding student organisations. Therefore, to carry out the most accurate analysis, the research used modified questions constructed by Velt et al. (2020) that addressed issues related to student organisations, i.e.:

– Who is the most influential author of publications in the studied field (in terms of citations), and who publishes the most?

– Which countries are responsible for the most significant number of publications, and which institutions are crucial to deepening the topic?

– What is the network of links between researchers, including co-authorship and citations?

– Which journals publish the most significant number of articles in student organisations?

– What are the most relevant fields of research for student organisations?

As for the source literature, a reference to student organisations appears for the first time at the beginning of the last century (1910) in an article published in an

Education journal entitled: "Students organisations in city high schools". At that time, few studies were published, as during eighty years, the number of publications within each year did not exceed two. However, it is worth mentioning that issues related to student activities became important in the organisational context and the development of higher education. Analyses related to the development and creation of new units and their inclusion in the study programme were initiated (Conye, 1983; Bare & Hoggat, 1986; Spinks & Wells, 1989; Putilinaa et al., 2018; Alieksieiev et al., 2019; Song et al., 2019). Most often, however, attention was paid in the papers to student organisations through the prism of the activity of student councils (Gilmor & Scott, 1970; Colelli et al., 2019).

Despite an upward trend in papers related to student organisations, the published articles often concern research other than the management of student organisations. The authors of numerous publications focus on analysing demographic data and their impact on the functioning of a university. The most often identified ones are the impact of skin colour and ethnic groups on belonging to a given organisation or the relationship of the variables mentioned above on successes achieved by students and graduates in the labour market in different time perspectives (Ghaziani, 2011; Walls et al., 2010; Harper, 2015; Harper & Quaye, 2007). Competence development is an area discussed in the research, which concerns student organisation recruitment, development and management processes (Espinosa, 2011; Bilen et al., 2005; Sagen et al., 2000; Jakubiak, 2017).

Research methods

This study plans to perform a bibliometric analysis based on qualitative, quantitative and statistical research, as well as in many areas of management research (Mongeon & Paul-Hus, 2015; Więcek-Janka & Szewczuk, 2022), using data and content found in publications (Diodato & Gellaty, 2013; Vanti, 2000). An extensive literature review enables mapping the network of links among the research directions (Smuda-Kocoń, 2022). This process follows the procedure: formulation, identification, selection and analysis. The whole follows an exploratory nature of the activities carried out under the approach implemented by Velt et al. (2020), Denyer and Tranfield (2009), Diodato and Gellaty (2013) and Araya-Castillo et al. (2021).

The development of the issues would not have been possible without the identification stage, the primary purpose of which was to determine the keywords and the timing assumptions or search patterns (Velt et al., 2020). In connection with the conducted research, it was decided that the main search stream was "student *organisation*". In addition, it was decided to limit the search category to "Topic" to eliminate too many articles incompatible with the issue being developed. According to recommendations specified by Velt et al. (2020), the search parameters were also limited to the following indices: Science Citation Index Expanded (SCI-E), Social

Science Citation Index (SSCI) and Emerging Sources Citation Index (ESCI) (Osiński, 2012). Such a procedure limited the obtained results to the reviewed materials, removing conference materials or book abstracts. In addition, due to the relatively small number of publications related to student organisations, it was decided to analyse the papers from 1900 to 2022. In this way, the issue was verified from the beginning of its publication without time limits (Velt et al., 2020; Denyer & Tranfield, 2009; Araya-Castillo et al., 2021).

The results obtained during the study were subjected to detailed verification at the next stage of the so-called selection. Out of 506 articles published between 1900 and 2022 and cited 4,548 times, 80% of the obtained results were classified in another category similar to the one being developed. As a result, it was planned to include materials related to the management model and university management as issues closely related to the conducted research.

The next step was to analyse the data using appropriate scientific and technical tools per the objectives and research questions. The following parameters were determined and subjected to further analysis: the number of publications, citations, productivity and influence of authors, categories according to the Web of Science, productivity and impact of given institutions and countries, and keywords. In addition, the obtained results were used to conduct a bibliometric mapping analysis. As a result, it was possible to prepare detailed visualisations of critical connections and concepts, taking into account their strength, frequency and co-correlation using the VOSviewer 1.6.16 software (Van Eck & Waltman, 2010; Velt et al., 2020).

This study is intended to establish a direction for in-depth research planned by the authors. The bibliometric analysis presented shows the scientific interest in student organisations in the Web of Science database, one of the most influential scientific databases. Due to the items available from many fields and scientific disciplines and the possibility of using appropriate search filters, the database allows a broad spectrum of analysis without needing additional databases (Araya-Castillo et al., 2021).

A detailed analysis of papers in selected fields of science is possible in the Web of Science database thanks to an extensive network of information fields for each record. Source titles, abstracts, authors, references, keywords, data of the issuing institution, language and type of document, and the number of citations for publications are the key factors that constitute the metadata. The above criteria made it possible to identify keywords common to researchers. They determine their cooperation (co-authorship), impact (bibliographic links), the level of cooperation between countries or organisations and whether they belong to a given field. In addition, journals were classified by determining their productivity, which also facilitates the determination of their leading specialisation (García-Aroca et al., 2017).

The realisation of such objectives is possible thanks to bibliometric analysis, which researchers increasingly use due to its transparency (Araya-Castillo et al., 2021). According to Zupic and Čater (2015), one of the researchers' objectives is to develop a single source reference for the management area, interested in using bib-

liometric methods to build a network of connections in a selected time and thematic range. In addition, the authors predict that bibliometric methods will complement meta-analysis and qualitative reviews of structured literature as a method of reviewing and evaluating scientific literature (Velt et al., 2020).

Results

This section highlights and discusses the results from scientific and technical research (based on data obtained from the Web of Science database and analyses performed using the VOSviewer software) related to student organisations.

First of all, it was noted that the unification of processes regarding the activities of student organisations, to a large extent, can also be compared with aspects of university management. First of all, it was noticed that the unification of processes related to the activities of student organisations could also be compared to the aspects of university management to a large extent. This similarity becomes evident when one analyses the governance issues that arise in both entities. For student organisations, managing diverse groups with different goals, structures, and memberships can be challenging. A similar situation may occur in matters related to university management. In this case, however, challenges may be posed to regular units such as departments or administrative units. Figure 1 shows the number of publications concerning both of these areas.

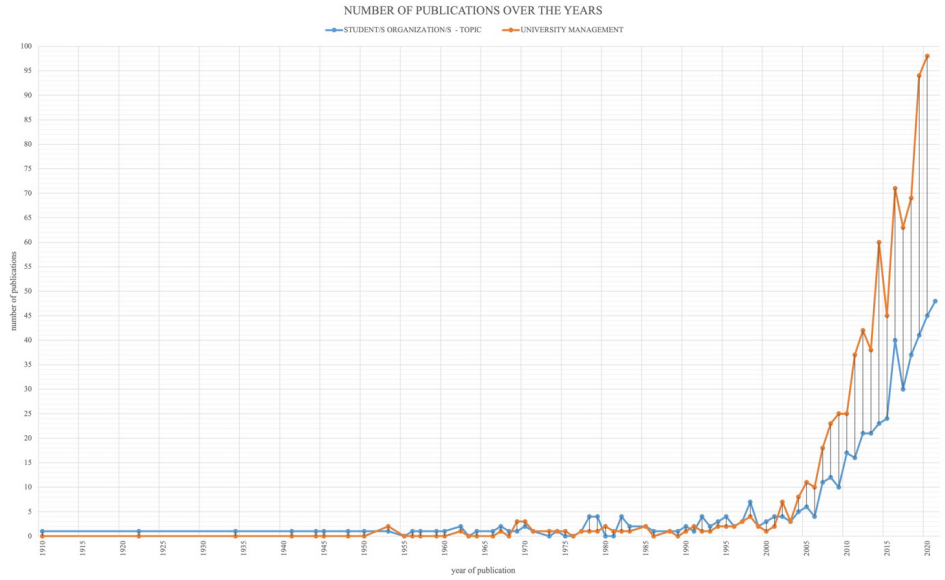

Figure 1. The number of publications on issues related to (1) student organisations, (2) university management

Source: Authors' own study based on the Web of Science data (2022).

Publications and citations on student organisations in the Web of Science database

First, the number of articles on the "student organization" (including the plural) published from 1900 to 2022 was determined. The conducted analysis allowed us to establish that the first published material concerns a publication by David Cloyd (1910). The article "Students Organizations in City High Schools" appeared in 1910 in *Education*, which is not currently a pioneering scholarly work. Moreover, we know little about the article's content, and its availability is severely limited. Its attribution to the scope of the work is related to its title, which corresponds to the type of Web of Science database search used.

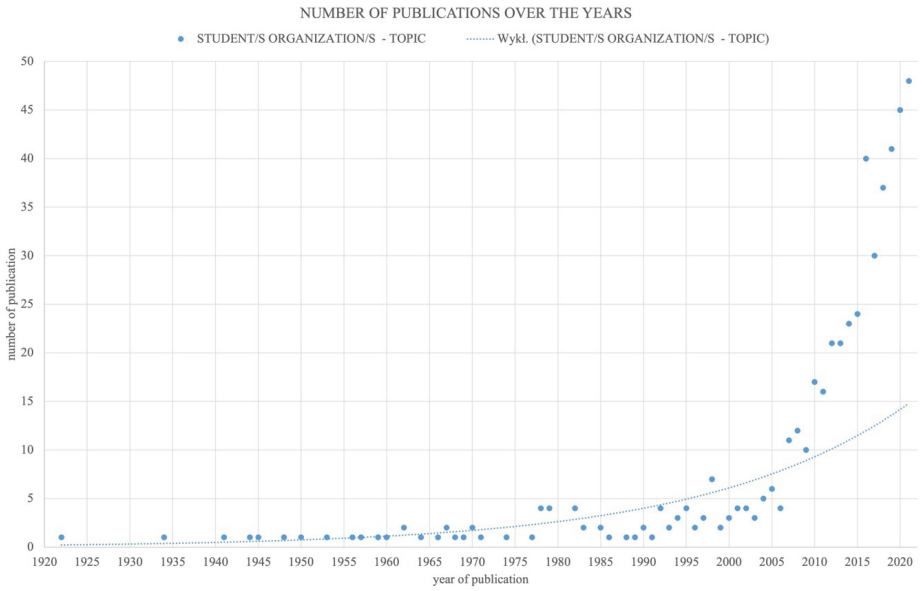

Figure 2. The number of publications concerning student organisations in the years 1910–2022

Source: Authors' own study based on the Web of Science data (2022).

The graph in Figure 2 indicates that issues related to student organisations constituted a fraction of publications in 1910–2000. An increase in the number of published articles related to the topic occurred only after 2007, the first time the number of 10 papers per year was exceeded. The next significant period is the years from 2016 until now. Currently, 247 publications have been created, accounting for 49% of all the selected papers. This shows an increasing level of interest in issues related to student organisations.

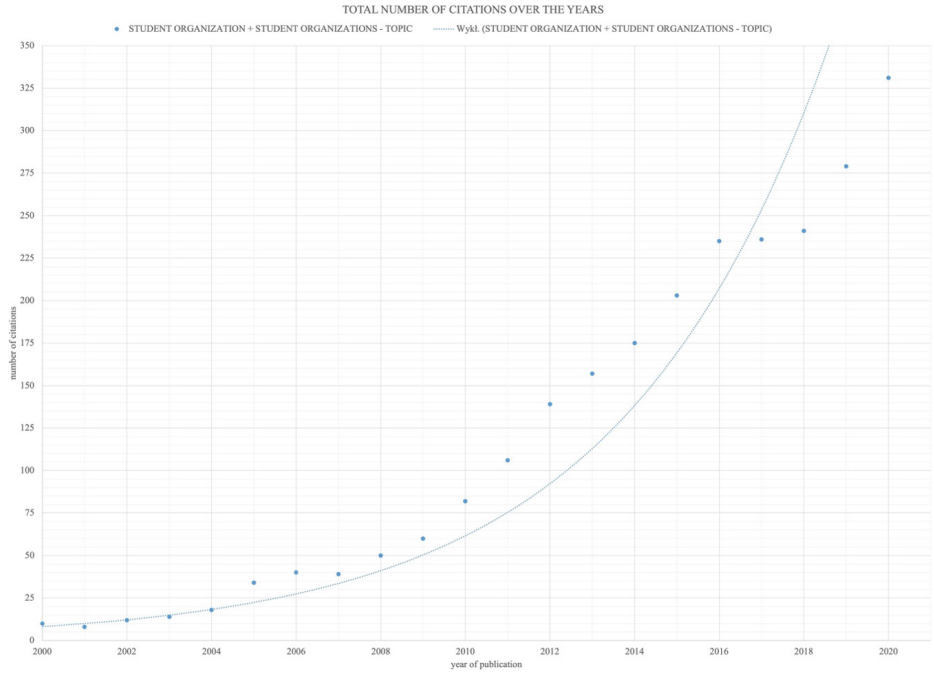

Figure 3. Number of citations in 2000–2022

Source: Authors' own study based on the Web of Science data (2022).

Figure 3 shows the number of citations concerning the issue of student organisations in the indicated years. Regarding the number of publications, we can talk about the emergence of upward trends in the case of citations. The stated term was cited most in 2021 (351), significantly higher than the citation average of 96.

Table 1. Structure of citations of student organisations

Number of citations	Number of papers	% of papers
Over 200	1	0.20
150–200	1	0.20
100–150	6	1.19
50–100	8	1.58
0–50	490	96.84
Total	506	

Source: Authors' own study based on the Web of Science data (2022).

Table 1 presents an index of citations of articles, which were cited 2,871 times in total. Only in the case of one article the number of citations is classified above 200, which gives 0.20% of published papers. This article by Lorelle L. Espinosa will be presented in detail later in this discussion. The same situation can be observed in the case of the number of citations in the range of 150–200. Six publications were

classified in the 100–150, accounting for 1.19%. Not many more, as it is only fewer than eight papers, were included in the range of 50–100, which accounts for 1.58% of published articles. The vast majority, as many as 96.84%, are articles cited according to Web of Science from 0 to 50.

One of the indicators used in the bibliometric analysis is the Hirsch index (the so-called *h*-index). It specifies a particular number of *h* of such publications whose number *c* of quotations is not smaller than *h*. Therefore, it depends on the number of published articles and their citation rate. It is often used to evaluate the authors of scientific papers and journals (Osiński, 2012). In this study, the indicated *h*-index is 32. This means that 32 papers have been cited at least 32 times. Such articles often significantly impact the research (Steward et al., 2019).

In the table below (cf. Table 2), a list of the most frequently cited articles on the "student organisation" issue is specified. One of the most commonly cited papers (213) is a publication by Espinosa, shown in the *Harvard Educational Review* (Q2[1]). The material, prepared by Espinosa, deals with raising and developing competencies among women of different nationalities, taking into account their skin colour. The study considered the experiences of 1,250 women of colour and 891 white women from 135 institutions in the United States. Additional aspects of the study included issues of ambition and joining student organisations associated with academic and research projects related to engineering in the broadest sense (Espinosa, 2011). This item represents 4.69% of all citations (4,548). Other papers in Table 2 are on the LGBT community and ethnic groups or stereotypes.

In Amin Ghaziani's work, we can encounter issues concerning the post-gay environment or the construction of a collective identity for LGBT people. The article talks about the transition of activists from the opposition ("versus") to inclusion ("and"). However, in conclusion, we encounter criticism and implications for post-gay politics (Ghaziani, 2011). In contrast, the third most cited study shows the impact of alliances between homosexuals and right-wing groups on the school experiences of sexual minority youth. The findings show that such relationships can have several positive effects. However, this can sometimes be attributed to the legalisation of such organisations. The study examined the social aspects of such groups. The results show that alliances positively affect more school experiences than whether sexual minority youth are members (Walls et al., 2010). The indicated items deviate significantly from the associated subject matter. However, they represent a significant percentage of the listed publications, which were singled out in the Web of Science database (about 80%). One of the most influential articles in the selected issue is by Norman T. Feather, published in the *European Journal of Social Psychology* (Q2). This pub-

[1] Q2 (quartile II) represents a journal's statistical position in terms of the Impact Factor (IF) it holds. A journal can belong to one of the four quartiles, or if it has more than one field in which it publishes more, respectively. Quartile I (Q1) includes 25% of journals with the highest IF in a given area (https://biblioteka.gumed.edu.pl/?strona=375/).

lication was cited 47 times, 1% of all citations. The author analysed the impact of engagement (assessment of activities and their results) and the right to participate in elections to the national student organisation. Parameters such as workload and age of the candidate were considered. The results confirmed that the first parameter plays a considerable role in achieving success in the indicated range (Feather, 2003). It is also worth adding that the author of this article is also distinguished in terms of the height of the *h*-index, which in his case is as high as 52.

Table 2. The most frequently cited papers on the issue of "student organisation"

Ranking	Author	Title	Year	Journal	Number of citations
1	Espinosa, L.L.	"Pipelines and pathways: Women of color in undergraduate STEM majors and the college experiences that contribute to persistence"	2011	*Harvard Educational Review*	213
2	Ghaziani, A.	"Post-gay collective identity construction"	2011	*Social Problems*	190
3	Walls, N.E., Kane, SB., Wisneski, H.	"Gay-straight alliances and school experiences of sexual minority youth"	2010	*Youth & Society*	148
4	Harper, S.R., Quaye, S.J.	"Student organisations as venues for Black identity expression and development among African American male student leaders"	2007	*Journal of College Student Development*	134
5	Museus, S.D.	"The role of ethnic student organisations in fostering African American and Asian American students' cultural adjustment and membership at predominantly white institutions"	2008	*Journal of College Student Development*	123
6	Sidanius, J., Van Laar, C., Levin, S., Sinclair, S.	"Ethnic enclaves and the dynamics of social identity on the college campus: The good, the bad, and the ugly"	2004	*Journal of Personality and Social Psychology*	114
7	Lewis, R.J., Derlega, V.J., Berndt, A., Morris, L.M., Rose, S.	"An empirical analysis of stressors for gay men and lesbians"	2001	*Journal of Homosexuality*	112
8	West, D.C., Pomeroy, J.R., Park, J.K., Gerstenberger, E.A., Sandoval, J.	"Critical thinking in graduate medical education – a role for concept mapping assessment?"	2000	*JAMA – Journal of the American Medical Association*	110
9	Ford, T.E., Boxer, C.F., Armstrong, J., Edel, J.R.	"More than just a joke: The prejudice-releasing function of sexist humor"	2008	*Personality and Social Psychology Bulletin*	93
10	Coleman, E., et al.	"Summit on medical school education in sexual health: Report of an expert consultation"	2013	*Journal of Sexual Medicine*	85
(…)					
19	Feather, N.T.	"Distinguishing between deservingness and entitlement: Earned outcomes versus lawful outcomes"	2003	*European Journal of Social Psychology*	47

Source: Authors' own study based on the Web of Science data (2022).

However, given the early publication of the first article on student organisations (1910), the submitted results still show this is a developing area of research. It is also worth mentioning that the most important items (in terms of citation) were created after 2000, while only three concern the last decade. An additional aspect is papers related to the development of competencies, which, as a few, may constitute an essential element in the conducted research. However, these studies are less frequently cited. Another premise for further research related to this area is the lack of a clearly outlined network of authors' cooperation.

Principal researchers and authors of publications in the area of student organisations

According to the Web of Science, database analysis papers in student organisations were published by 1,174 authors, whose research and interpretations can be found in 506 publications. Table 3 shows ten of them who can be considered the most productive. The lack of publications by individual authors may indicate that the topic of student organisations is still an open field and awaits more frequent considerations. The list in Table 3 includes the number of publications and the average number of citations for each article, the percentage share in all articles and the *h*-index, the number of all publications and the number of citations constituting the author's assessment. In addition, it is worth noting the affiliation of the individual researchers. As many as eight are affiliated with universities in the United States, which may indicate the country's pioneering activities in the field under study. However, it is worth noting that as many as three authors are affiliated with a single university – the University of Wisconsin System. The other two researchers represent higher education from Russia and Brazil.

Table 3. The most productive authors of the issue of student organisations

Ranking	Author/s	Institution	Total papers in the area of student/s organisation/s	% of 506	Citations in the area of student organisation/s	% of 4,606	Citation per paper	% of all journals	*h*-index of author	Total papers by the author	Total citations by the author
1	Park, J.J.	University of Maryland College Park	7.0	1.383	159.0	3.45	22.7	1.4	18	56	651
2	Bowman, N.A.	University of Iowa	4.0	0.791	99.0	2.15	24.8	0.8	27	89	1,659
3	Caldana, A.C.F.	University of São Paulo	4.0	0.791	61.0	1.32	15.3	0.8	5	6	62
4	Peltier, J.W.	University of Wisconsin System	4.0	0.791	69.0	1.50	17.3	0.8	24	72	1,348
5	Senechal, M.	Smith College	4.0	0.791	9.0	0.20	2.3	0.8	10	54	245

Ranking	Author/s	Institution	Total papers in the area of student/s organisation/s	% of 506	Citations in the area of student organisation/s	% of 4,606	Citation per paper	% of all journals	*h*-index of author	Total papers by the author	Total citations by the author
6	Bush, A.A.	MIREA – Russian Technological University	3.0	0.593	20.0	0.43	6.7	0.6	24	273	2,359
7	Childs-kean, L.M.	University of Florida	3.0	0.593	1.0	0.02	0.3	0.6	7	27	251
8	D'alessandro, A.M.	University of Wisconsin System	3.0	0.593	60.0	1.30	20.0	0.6	53	278	7,357
9	Dahl, A.J.	University of Wisconsin System	3.0	0.593	60.0	1.30	20.0	0.6	8	10	104
10	Ford, T.E.	Western Carolina University	3.0	0.593	125	2.71	41.7	0.6	19	44	1,326

Source: Authors' own study based on the Web of Science data (2022).

Breakdown by indicated productivity. This is not the only aspect according to which the participation of scientists in the issue can be considered. Attention should also be paid to the influence of a given author on his/her development. Table 4 presents the ten most influential researchers concerning the number of citations. Their citations account for 35% of all analysed citations. However, it is worth emphasising that only two authors can also be found in the productivity table. They are Park representing the University of Maryland College Park, and Ford representing Western Carolina University. This means that the relationship between the most productive and influential authors virtually does not exist or is negligible. From the point of view of the indicated issue, it shows a gap which should be supplemented with consistent and reliable research and results.

Table 4. The most influential authors of the issue of student organisations

Ranking	Author/s	Institution	Total papers in the area of student organisation	% of 506	Citations in the area of student organization/s	% of 4,606	Citation per paper	% of all journals	H-Index of author	Total papers by the author	Total citations by the author
1	Espinosa, L.L.	Amer Council Educ	1	0.198	222	4.82	222	0.2	5	18	787
2	Harper, S.R.	University of Southern California	3	0.593	198	4.30	66.0	0.6	16	33	1,077
3	Ghaziani, A.	University of British Columbia	1	0.198	190	4.13	190	0.2	12	25	477
4	Park, J.J.	University of Maryland College Park	7	1.383	159	3.45	22.7	1.4	18	56	651

Ranking	Author/s	Institution	Total papers in the area of student organisation	% of 506	Citations in the area of student organization/s	% of 4,606	Citation per paper	% of all journals	H-Index of author	Total papers by the author	Total citations by the author
5	Kane, S.B.	Memorial Sloan Kettering Cancer Center	1	0.198	149	3.23	149	0.2	2	9	206
6	Walls, N.E.	University of Denver	1	0.198	149	3.23	149	0.2	22	45	1,154
7	Wisneski, H.	Human Rights Campaign	1	0.198	149	3.23	149	0.2	7	8	290
8	Quaye, S.J.	Ohio State University	1	0.198	135	2.93	135	0.2	7	24	308
9	Ford, T.E.	Western Carolina University	3	0.593	125	2.71	41.7	0.6	19	44	1,326
10	Museus, S.D.	University of California San Diego	1	0.198	125	2.71	125	0.2	17	42	703

Source: Authors' own study based on the Web of Science data (2022).

It is also worth emphasising that most authors represent institutions from the United States. This may prove the existence of an increased interest in the subject matter and a particular gap at, for example, European universities.

The next step was to define a network of links concerning co-authorship. Suitably configured data collected from the Web of Science database were entered into the VOSviewer software. The performed analysis was limited by imposing a minimum number of repetitions to 2 and only to cooperating authors, and the results are shown in Figure 4. The obtained 60 results were located in 35 clusters unrelated to each other. Such a map indicates that student organisation issues are not widespread. Researchers working on them are narrow groups of scientists, often from, for example, one university or country.

One of the largest groups comprises the relationships between four authors (Figure 5). However, an important issue is that none of them is included in the statements related to the impact (citation) of the work and, even more so, to the number of publications. However, it is worth mentioning that the presented visualisations were made considering the minimum number of repetitions at level 2, which, with the obtained results, indicates a low association of cooperating authors and a low interdependence regarding the issue itself. In the case of prepared maps, the cursor (dot) assigned to a given author also becomes significant. The greater the number of publications created as part of co-authorship, the greater the cursor. According to Figure 5, Adriana Cristina Ferreira Caldana was the most productive author in the specified group.

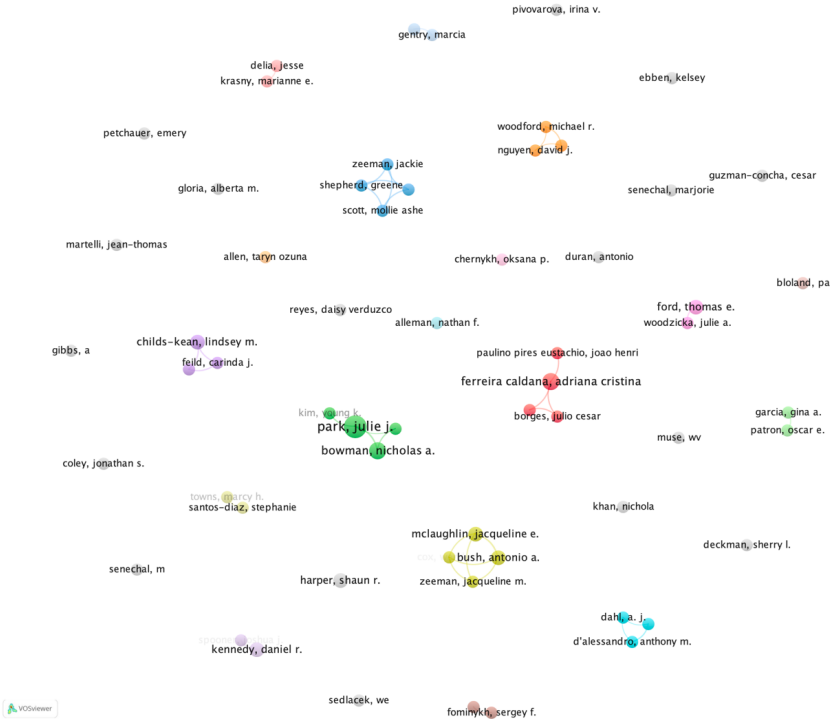

Figure 4. Network of relationships between cooperating authors

Source: Authors' own study based on the Web of Science data (2022).

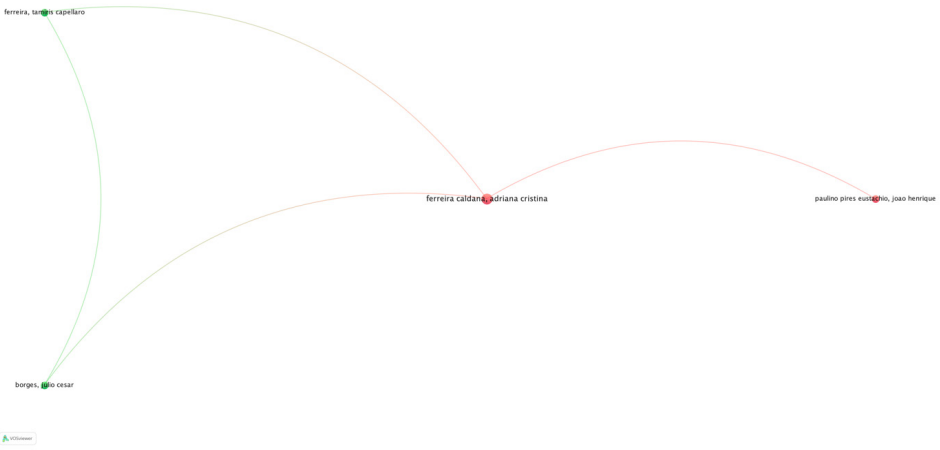

Figure 5. Network of relationships with the highest degree of association

Source: Authors' own study based on the Web of Science data (2022).

An additional element of the development of this issue is the visualisation presented in Figure 6 regarding the relationships resulting from citations between authors. The correct reading of the graph is related to the cursor next to the author's name because the number of citations affects its colour.

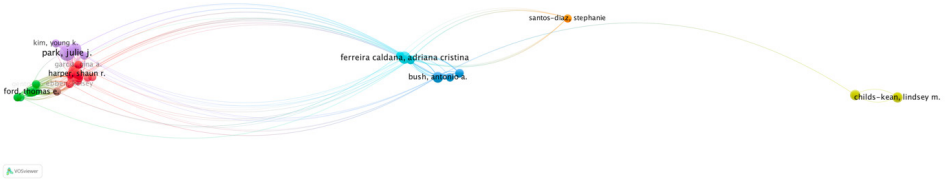

Figure 6. Graph of mutual bibliography for the most frequently cited publications related to student organisations

Source: Authors' own study based on the Web of Science data (2022).

Table 5. Bibliography clusters for the most frequently cited publications related to student organisations

Cluster 1 (16 items)	Cluster 2 (9 items)	Cluster 3 (8 items)	Cluster 4 (5 items)	Cluster 5 (4 items)	Cluster 6 (4 items)	Cluster 7 (2 items)	Cluster 8 (2 items)
Alleman, N.F.	D'alessandro, A.M.	Bush, A.A.	Childs-Kean, L.M.	Bowman, N.A.	Borges, J.C.	Santos-Diaz, S.	Delia, J.
Allen, T.O.	Dahl, A.J.	Cox, W.C.	Feild, C.J.	Denson, N.	Ferreira Caldana, A.C.	Towns, M.H.	Krasmy, M.E.
Coley, J.S.	Ford, T.E.	Mclaughlin, J.E.	Kennedy, D.R.	Kim, Y.K.	Ferreira, T.C.		
Deckman, S.L.	Gentry, M.	Scott, M.A.	Patel, P.N.	Park, J.J.	Paulino Pires Eustachio, J.H.		
Duran, A.	Guzman-Concha, C.	Shepheard, G.	Spooner, J.J.				
Ebben, K.	Khan, N.	Williams, C.					
Garcia, G.A.	Peltier, J.W.	Zeeman, J.					
Gloria, A.M.	Peters, S.J.	Zeeman, J.M.					
Harper, S.R.	Woodzicka, J.A						
Nguyen, D.J.							
Patron, O.E.							
Petchauer, E.							
Renn, K.A.							
Reyes, D.V.							
Sedlacek, We.							
Woodford, M.R.							

Source: Authors' own study based on the Web of Science data (2022).

Eight marked clusters of different colours characterise the network indicated in Figure 6. The authors presented in Table 5 shape specific clusters and determined their relationships. The most productive authors can be noted in groups: 5 (marked in purple), 2 (green), 3 (blue) and 4 (yellow), and the most productive in clusters: 1 (red), 5 (purple) and 2 (green). Authors located in the first most numerous cluster work on topics mainly related to student organisations in the context of national minorities and the formation and functioning of groups with a religious character. They studied the impact of membership in, for example, student organisations related to skin colour on students' identification with a particular social group. In the second group, we can find authors whose research goal became the activity of students using such tools as social media in various aspects and improving their competence in, for example, marketing. The research conducted by authors in the third cluster is mainly concerned with studying the impact of student involvement in student organisations on professional development and competence improvement. Topics related to pharmacy students unite the authors in the fourth cluster. Meanwhile, the fifth cluster revisits works about minorities, race or religiosity and their impact on friendship in particular groups. Among the topics covered in the following collections, we encounter the connection between student organisations, business, and sustainability.

Ranking of importance of journals that publish results on student organisations

According to the Web of Science database compilation, 506 articles were published in 330 journals. Several journals and articles indicate the wide dispersion of the subject matter concerning student organisations and the lack of a unified focus. On the other hand, such a distinction may show how many fields are related to the subject of this research. Table 6 includes ten journals with the most published articles on the issue (110 publications, constituting 21.7% of all papers). It is worth mentioning that 270 journals published only 1 article, which accounts for over 50% of all papers. This significantly impacts the average citation rate for the publication, in this case, 9.38, which accounts for 1,058 citations. For the prepared compilation, the average *h*-index is 4.

Among the journals in Table 6, essential papers appeared in the *Journal of College Student Development* (26 articles account for slightly more than 5% of the total publications). In addition, an important aspect is that the same journal also has the highest *h*-index – 12, which is a high result compared to other effects. In the case of *Research in Higher Education*, we deal not only with the highest average number of citations of 30.2 but also with the highest Impact Factor – 4.173. This is a factor that makes it easier to identify those journals that are the most influential (Osiński, 2012). However, an essential element presented in Table 6, regarding the quality of published content and publishing journals, are the indicated categories of quartiles in which individual journals were placed. Noticeably, only one paper was published in a journal rated Q1. The situation is different in the case of other journals, two are ranked as Q2, a few in Q2/Q3, and even more in Q3 or Q4.

Table 6. Scientific journals with the most significant number of publications on student organisations

Ranking	Journal titles	Papers in the area of student organisation	% of 506	*h*-index	The average number of citations per paper	Total number of citations in the area of student organisation/s	Impact Factor of the journal in the last 5 years	Quartile in the category
1	*Journal of College Student Development*	26	5.138	12	23	598	2.514	Q3
2	*Mathematical Intelligencer*	19	3.755	2	1	19	0.33	Q4
3	*American Journal of Pharmaceutical Education*	18	3.557	6	6.67	120	2.789	Q3/Q4
4	*Journal of Diversity in Higher Education*	11	2.174	6	8.82	97	3.439	Q2/Q3
5	*Currents in Pharmacy Teaching and Learning*	10	1.976	3	2	20	1.425	Q1
6	*American Journal of Nursing*	6	1.186	1	0.17	1	2.183	Q2
7	*Agricultural Education*	5	0.988	0	0	0		
8	*Journal of Student Affairs Research and Practice*	5	0.988	1	1.2	6	1.079	Q2
9	*Research in Higher Education*	5	0.988	5	30.2	151	4.173	Q2
10	*Sustainability*	5	0.988	4	9.2	46	3.473	Q2/Q3

Source: Authors' own study based on the Web of Science data (2022).

Categories in which publications about student organisations appear

506 articles in the Web of Science database were divided into more than 100 groups. Table 7 indicates the ten most frequently assigned categories to which more than 80% of publications were assigned.

Table 7. The essential Web of Science categories in the area of publications related to student organisations

Ranking	Web of Science categories	Papers in the area of student organisation	% of 506	*h*-index	The average number of citations per paper	Total number of citations	Number of papers cited
1	Education Educational Research	157	31.028	22	11.24	1,764	1,562
2	Education Scientific Disciplines	55	10.870	9	5.4	297	282
3	Psychology Applied	40	7.905	16	19.45	778	693
4	Sociology	30	5.929	10	22.73	682	678
5	Pharmacology Pharmacy	26	5.138	7	5.19	135	122
6	Psychology Social	25	4.941	9	20.44	511	485
7	History	23	4.545	3	1.17	27	27
8	Mathematics	19	3.755	2	1	19	19
9	Psychology Educational	18	3.557	7	9.06	163	159
10	Social Sciences Interdisciplinary	18	3.557	6	18.17	327	325

Source: Authors' own study based on the Web of Science data (2022).

Among the categories most often indicated by the Web of Science, we can find areas related to education, applied psychology, sociology or social sciences, medicine, and history. More than 30% of the articles were assigned to Education Educational Research. It is also the category with the highest *h*-index (22). In addition, it is also associated with the highest number of citations (1,764) and the highest number of references to other papers (1,562). However, the highest average number of citations (22.73) concerns the fourth most frequently selected category, i.e. Sociology. Research conducted in this way may suggest that student organisation issues exist at the intersection of various disciplines. However, it has not yet been adequately defined and qualified, which gives a wide range of possibilities for research and analysis.

Primary sources of data analysis – institutions

According to the analysis based on the Web of Science database, 620 academic institutions dealing with the studied subject were identified. Table 8 presents the 11 most frequently published universities in student organisations' functioning. The University of California System and the University of North Carolina are the most involved in student organisations, the authors of which published the most papers (21 and 17, respectively). In addition, they also have one of the higher *h*-indices (9 and 7, respectively). They are also ahead of other affiliations regarding the most significant average number of citations and the largest number of cited papers.

Table 8. Primary institutional affiliations of authors of publications in the area of student organisations

Ranking	Affiliations	Countries	Papers in the area of student organisation	% of 506	*h*-index	The average number per paper	Total number of citations	Number of papers cited
1	University of California System	USA	21	4.150	9	22.9	481	479
2	University of North Carolina	USA	17	3.360	7	18.35	312	287
3	Pennsylvania Commonwealth System of Higher Education PCSHE	USA	14	2.767	8	19.57	274	270
4	Purdue University	USA	13	2.569	5	5.69	74	74
5	Purdue University System	USA	13	2.569	5	5.69	74	74
6	University of Wisconsin System	USA	13	2.569	7	9.54	124	118
7	Purdue University West Lafayette Campus	USA	12	2.372	5	5.83	70	70
8	University System of Maryland	USA	12	2.372	8	16.67	200	163
9	State University System of Florida	USA	11	2.174	3	16.18	178	178
10	University of Maryland College Park	USA	10	1.976	8	19.3	193	156
11	University of Wisconsin Madison		10	1.976	6	10.9	109	104

Source: Authors' own study based on the Web of Science data (2022).

The bibliometric analysis included 49 institutions cited at least twice (minimum number of repetitions 2). Thus, the visualisation shows a network of associations between the most frequently cited units.

Due to the low correlation shown in Figure 7, the visualisation was simplified with the following institutions: Texas Agricultural and Mechanical University, Miami University, Lincoln University and Arizona State University. The remaining units were divided into ten previously mentioned clusters. The largest of them (red) distinguishes 12 institutions, the most important of which is the University of Georgia (6 publications) and Ohio State University (3 publications). In the following 3 clusters, six items were distinguished (green, blue and yellow), and the leading units are, respectively: the University of Virginia (4 publications), the University of Melbourne (3 publications), and Pennsylvania State University (8 publications). Clusters 5 (purple) and 6 (light blue) include five items, the most important of which are Purdue University and Western Carolina University. However, noting the number of citations,[2] the most important institutions are the University of California (222), Pennsylvania State University (215), and the University of Maryland (204). It is also worth noting the issue of the location of all of the universities mentioned above because the United States is a pioneer in this category.

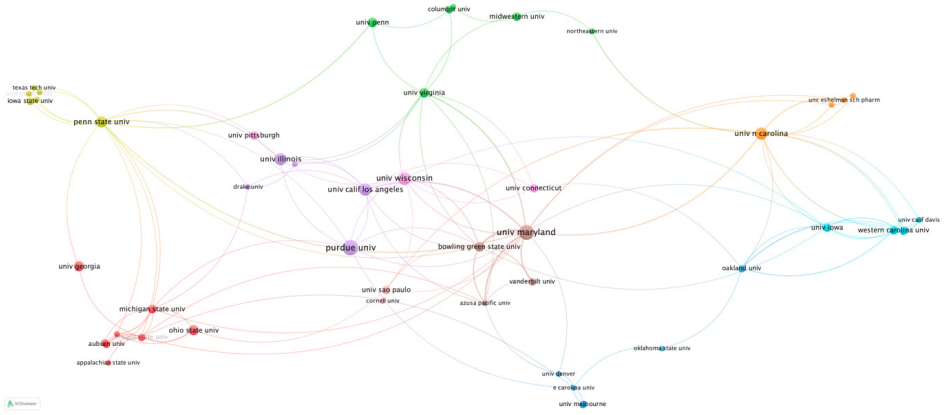

Figure 7. Visualisation of the most frequently cited organisations

Source: Authors' own study based on the Web of Science data (2022).

Primary sources of data analysis – countries

In the conducted demographic analysis of the developed issue, it can be seen that in the case of 29 countries, at least three articles were published. The ten most "productive" countries are listed in Table 9, with a share of more than 80% of the

[2] The larger the dot, the greater the number of citations.

total number of papers. However, it must be remembered that in some cases, publications are assigned to more than one location because of the collaboration between institutions. At the top of the ranking are the USA (312 publications), Canada (18 publications) and Russia (17 publications). As mentioned earlier in Figure 7, there is no doubt that the pioneer in student organisations is the United States. This is evidenced by the number of publications significantly exceeding the remaining countries, the *h*-index amounting to 30, and the total number of citations concerning this issue at 3,831. It is also worth noting that publications originating from the USA were cited in 3,522 papers, which exceeds Canada by more than 17 times. Nevertheless, the Netherlands achieved the highest average number of citations (7 publications), amounting to 30.14.

Table 9. Countries associated with publications on student organisations

Ranking	Countries	Papers in the area of student organisation	% of 506	*h*-index	The average number of citations per paper	Total number of citations	Number of papers cited
1	USA	312	61.660	30	12.28	3,831	3,522
2	Canada	18	3.557	6	11.44	206	204
3	Russia	17	3.360	2	0.65	11	11
4	England	13	2.569	4	5.08	66	66
5	Spain	11	2.174	3	4.91	54	54
6	Brazil	10	1.976	6	11.6	116	108
7	China	9	1.779	4	9.78	88	88
8	Indonesia	8	1.581	1	0.88	7	7
9	Australia	7	1.383	5	17.71	124	124
10	Netherlands	7	1.383	5	30.14	211	211

Source: Authors' own study based on the Web of Science data (2022).

Figure 8 presents a bibliometric analysis of co-authorship occurring between countries. The creation of visualization considers the minimum number of repetitions 2 (creating at least two publications together). Such an assumption from over 60 countries is met by fewer than 28 countries, creating seven separate clusters.

Table 10. Clusters of co-authorship between countries

Cluster 1 (6 items) red	Cluster 2 (6 items) green	Cluster 3 (4 items) blue	Cluster 4 (4 items) yellow	Cluster 5 (3 items) purple	Cluster 6 (3 items) lightblue	Cluster 7 (2 items) orange
Belgium	Canada	Denmark	Bangladesh	Colombia	Australia	Japan
Brazil	England	India	Norway	Spain	Israel	New Zealand
Germany	France	Malaysia	China	Turkey	USA	
Netherlands	Italy	Morocco	Russia			
Nigeria	Peru					
Poland	Switzerland					

Source: Authors' own study based on the Web of Science data (2022).

In the red cluster with the highest number of citations, we can distinguish the Netherlands (211). Canada (205) was located at a similar level in cluster 2. Another significant result can be observed only in the 6th group, where the United States has the most important number of citations (3,724) and the most influential (296).

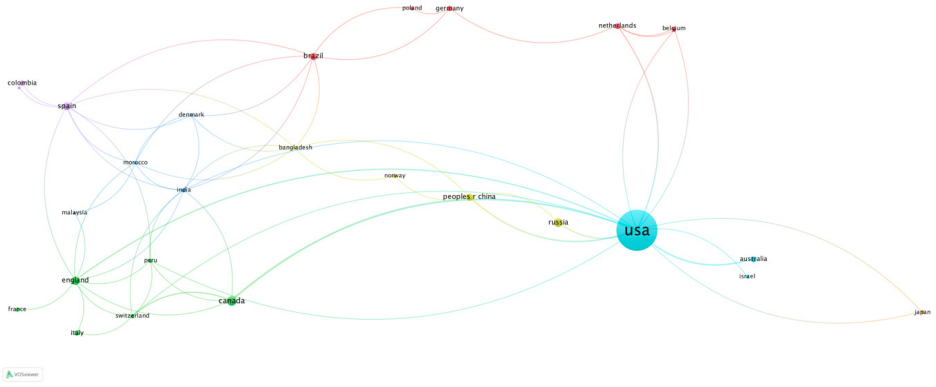

Figure 8. Co-authorship between countries

Source: Authors' own study based on the Web of Science data (2022).

Taking into account the network presented in Figure 8, it is worth noting that apart from the dominant country, the United States, little correlations become essential in the further development of the issue of a student organisation. Such concentrations constitute the future for further research, e.g. in Europe (Netherlands – Germany – Poland, England – Spain – Denmark).

Bibliometric analysis of keywords

Figure 9 presents the visualisation of the bibliometric analysis of 506 publications taken from the Web of Science database. The database of 1,649 keywords was limited to 47, appearing not less than seven times, creating 4 clusters.

Relevant to the issue, we can find terms such as "student organisation(s)" and "student organisation(s)" in cluster 1 related to activation and activities and three related to higher education, respectively. In this case, the plural occurs more often than the singular, i.e. "student organisation" – 9, "student organisations" – 43. This means that when the minimum number of repetitions is increased to, e.g. 10, we will not find the first of keywords in such visualisation. Undoubtedly, the nature of the clusters is very much influenced by works published in the United States and dealing with issues related to gender identity, LGBT+ or culture itself, of which there is the most significant number of jobs on the scale of the others. Thus the repetition of the issues in question is also high.

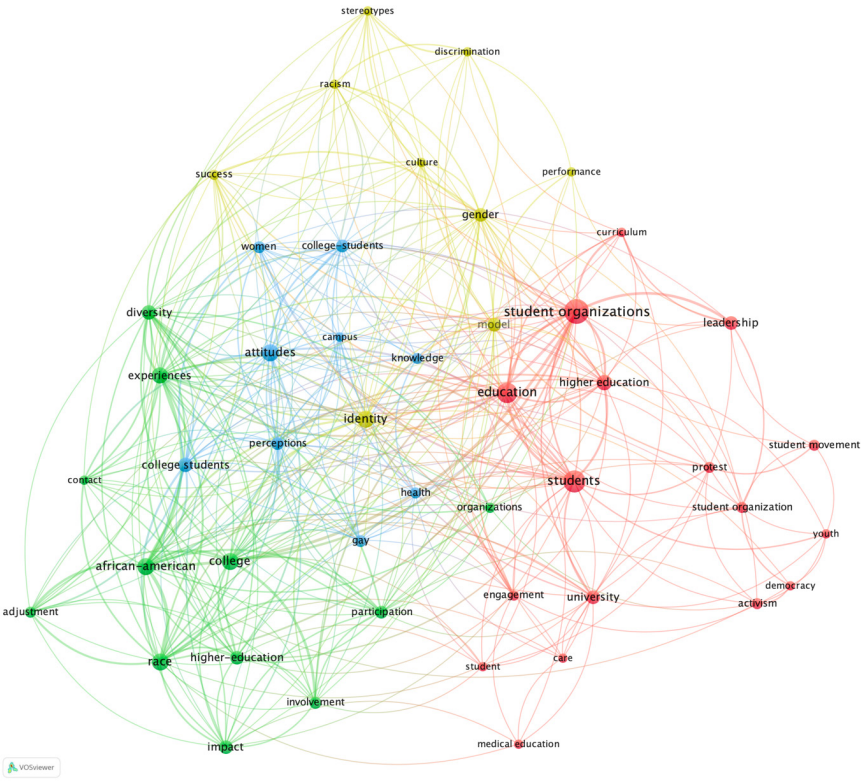

Figure 9. Bibliometric visualisation of research in the area of issues related to student organisations

Source: Authors' own study based on the Web of Science data (2022).

Table 11. Clusters of co-existence in the use of keywords

Cluster 1 (14 items) red activity development	Cluster 2 (13 items) green diversity	Cluster 3 (12 items) blue higher education	Cluster 4 (10 items) yellow identity
activism	adjustment	campus	college students
care	African-American	college students	culture
democracy	attitudes	curriculum	discrimination
engagement	College	education	gender
leadership	contact	gay	identity
medical education	diversity	health	model
protest	experiences	higher education	perceptions
quality	higher-education	knowledge	performance
student	impact	science	racism
student movement	involvement	student organisations	stereotypes
student organisation	organisations	success	
students	participation	women	
university	race		
youth			

Source: Authors' own study based on the Web of Science data (2022).

Conclusions

An increase in interest in issues related to "student organisation" over the last 5 years has risen by 40% (506 publications). It is one of the fundamental reasons for starting research on the concept, connections and, above all, the future of this field, despite researching another subcategory, e.g. increasing competence among members/leaders of student organisations (Soria & Johnson, 2020). Issues related to organisational and administrative matters cannot be omitted (Alotaibi & Alarifi, 2020; DeHart et al., 2020), which apply to every unit with a hierarchy in its structure, limiting its existence with other overarching regulations, which it cannot affect, for example, the laws and regulations in force in a given country.

The study was prepared by searching and collecting data from one scientific database, the Web of Science. It should be noted that this database also has limited resources despite the broad spectrum of papers, and the content or results are not included in this article. In addition, despite using the limitation when searching for articles (search using "Topic") and partial verification of the obtained content, the received results still could constitute elements necessary to be removed due to the content significantly deviating or even incompatible with the conducted research. However, this may be the basis for further analyses, deepening knowledge from a given field or preparing appropriate tools for additional steps.

To make a correct and comprehensive assessment of the field related to "student organisation", it is necessary to extend the research with different scientific databases, e.g. Scopus or EBSCO, and to extend the verification of the content of released publications. Only one of the databases was chosen for this study to ensure the quality of the analysis performed using the VOSviewer program. Performing the analysis from generated and merged data exports from several databases without verifying, for example, duplicate items could have caused a skewed result of the bibliometric investigation, which would have disqualified the entire study and its validity.

This study presents a bibliometric analysis of the "student organisation" issue. The conducted research aimed to illustrate and prove the emerging research gap related to the academic scientific movement. It has, even though quite rarely, a significant impact won the management of universities today. The research included in this study is one of the first studies in this field, showing the issues with which student organisations have so far been associated. Comprehensively prepared work significantly facilitated answers to questions asked in the methodology (Velt et al., 2020). By starting the bibliometric research, we hoped to identify articles pointing directly to the models of managing student organisations in Europe and in the world. We did not find any. We sought methods, techniques and tools to manage them at eminent universities worldwide. Such research is hard to come by.

Issues related to student organisations are not only a topic of recent years. The first papers on this issue appeared at the beginning of the 20th century. However, it is only now that we see their most significant increase in citations and the number

of publications. The leading country in the conducted research in many respects was the United States, outdoing the remaining countries in the number of publications (312) or the total number of citations amounting to 3,831. The most influential author in terms of citation was Lorelle L. Espinosa with the publication "Pipelines and pathways: Women of color in undergraduate STEM majors and the college experiences that contribute to persistence", but Julie Park from the University of Maryland College Park is the most productive scientist. A significant aspect is the established network of connections between co-authors, the development of which is not yet at a high level. Still, it may constitute the basis for continuing work and developing the cooperating authors, institutions, and countries. The most frequently published journal is the *Journal of College Student Development* (26 articles, representing 5% of the total). The "student organisation" was most often assigned to the Education Educational Research category. However, it is worth noting that issues related to the LGBT community have become issues often associated with student organisations. This includes both their influence and support in academia for minority populations (Walls et al., 2010), as well as the possible adverse effects of their actions or environmental promotion, as Amin Ghaziani discussed in her work. Despite the vibrant academic environment, our attention should also not escape the fact that most publications have covered the area related to the United States. This often results in thematic implications of the issues covered due to the significant predominance of, for example, ethnic groups, racial categorisation of the environment, etc. Considering the period of published works and the first item as early as 1910, it can be concluded that student organisations as a topic, existing in science for more than 100 years, have not yet lived to see adequate classification and elaboration. This reveals a potential research gap to be filled and to move from the preliminary analysis stage to more advanced settings.

Future research proposal

The scientometric and bibliometric analysis made it possible to achieve the specific objective of the work, and, thus, identify the state of research on the management of student organisations in higher education worldwide. The survey conducted indicates a wide dispersion of research, which makes it difficult to find common functions that student organisations perform in higher education institutions. From the point of view of management, including planning, organising and controlling the functioning of student organisations, it can be considered necessary to study this topic in detail. Subsequent research on this topic will involve in-depth qualitative and quantitative analyses of issues related to the management of student organisations. The appropriate classification and characterisation of factors affecting its quality will form the basis for further research in the form of expert interviews. Subsequent research will allow the selection of elements used to create a dedicated model of

student organisation management for higher education institutions in Poland. The tool prepared in this way can form the basis for standardizing processes in the higher education sector and streamlining processes for the academic student movement, which is increasing year by year, including research.

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