


ACADEMIC ENGAGEMENT: A BIBLIOMETRIC ANALYSIS IN SCIENTIFIC PRODUCTION

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ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 03 July 2023</p> <p>Accepted 02 October 2023</p>	<p>Purpose: To conduct a bibliometric analysis of the existing literature on academic engagement in order to quantify academic output, identify influential authors and journals, and assess the temporal evolution of research, providing a comprehensive bibliometric perspective with guidance for future studies in the academic field.</p>
<p>Keywords:</p> <p>Academic Engagement; Education; Learning; Students.</p>	<p>Theoretical framework: Through a systematic search in academic databases, relevant studies about student commitment and motivation in educational contexts were identified.</p> <p>Design/methodology/approach: The methodology has a descriptive and exploratory approach, 816 articles were reviewed. By analyzing bibliometric indicators, it was revealed a constant growth in research in this field over the last decades, proving a growing interest in understanding and enhancing student participation in their learning process.</p>
	<p>Findings: The study identified an evolution on research themes, going from individual factors such as motivation to broader contextual issues, such as the impact of technology on the engagement and educational quality. The influence of key authors and institutions in shaping the field was highlighted, as well as a multidisciplinary approach encompassing psychology, education, medicine, and educational technology.</p> <p>Research, Practical & Social implications: This bibliometric study offers a panoramic and updated vision of academic engagement research.</p> <p>Originality/value: Its findings offer a solid foundation to future investigations and enrich the comprehension of how student participation and motivation contributes to a more meaningful learning and the improvement of educational systems.</p> <p>Doi: https://doi.org/10.26668/businessreview/2023.v8i10.3789</p>

ENGAJAMENTO ACADÊMICO: ANÁLISE BIBLIOMÉTRICA NA PRODUÇÃO CIENTÍFICA

RESUMO

Objetivo: Realizar uma análise bibliométrica da literatura existente sobre engajamento acadêmico, a fim de quantificar a produção acadêmica, identificar autores influentes e periódicos, e avaliar a evolução temporal da

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pesquisa, fornecendo uma perspectiva bibliométrica abrangente com orientação para futuros estudos no campo acadêmico.

Quadro teórico: Através de uma busca sistemática em bases de dados acadêmicas, estudos relevantes sobre o comprometimento e motivação dos alunos em contextos educacionais foram identificados.

Projeto/metodologia/abordagem: A metodologia tem uma abordagem descritiva e exploratória, foram revisados 816 artigos. Analisando indicadores bibliométricos, foi revelado um crescimento constante da pesquisa neste campo nas últimas décadas, demonstrando um interesse crescente em compreender e aumentar a participação dos alunos em seu processo de aprendizagem.

Descobertas: O estudo identificou uma evolução dos temas de pesquisa, passando de fatores individuais como motivação para questões contextuais mais amplas, como o impacto da tecnologia no engajamento e na qualidade educacional. Destacou-se a influência de autores e instituições-chave na formação do campo, bem como uma abordagem multidisciplinar que abrange psicologia, educação, medicina e tecnologia educacional.

Investigação, implicações práticas e sociais: Este estudo bibliométrico oferece uma visão panorâmica e atualizada da pesquisa de engajamento acadêmico.

Originalidade/valor: Suas descobertas oferecem uma base sólida para investigações futuras e enriquecem a compreensão de como a participação e a motivação dos alunos contribuem para uma aprendizagem mais significativa e a melhoria dos sistemas educacionais.

Palavras-chave: Envolvimento Acadêmico, Educação, Aprendizagem, Estudantes.

COMPROMISO ACADÉMICO: UN ANÁLISIS BIBLIOMÉTRICO EN LA PRODUCCIÓN CIENTÍFICA

RESUMEN

Finalidad: Realizar un análisis bibliométrico de la literatura existente sobre el compromiso académico con el fin de cuantificar la producción académica, identificar autores y revistas influyentes y evaluar la evolución temporal de la investigación, proporcionando una perspectiva bibliométrica integral con orientación para futuros estudios en el campo académico.

Marco teórico: Mediante una búsqueda sistemática en bases de datos académicas, se identificaron estudios relevantes sobre el compromiso y la motivación de los estudiantes en contextos educativos.

Diseño/metodología/enfoque: La metodología tiene un enfoque descriptivo y exploratorio, se revisaron 816 artículos. Mediante el análisis de indicadores bibliométricos se evidenció un crecimiento constante de la investigación en este campo en las últimas décadas, demostrando un creciente interés por comprender y potenciar la participación de los estudiantes en su proceso de aprendizaje.

Resultados: El estudio identificó una evolución en los temas de investigación, pasando de factores individuales como la motivación a cuestiones contextuales más amplias, como el impacto de la tecnología en el compromiso y la calidad educativa. Se destacó la influencia de autores e instituciones clave en la configuración del campo, así como un enfoque multidisciplinario que abarcaba la psicología, la educación, la medicina y la tecnología educativa.

Investigación, implicaciones prácticas y sociales: Este estudio bibliométrico ofrece una visión panorámica y actualizada de la investigación de compromiso académico.

Originalidad/valor: Sus hallazgos ofrecen una base sólida para futuras investigaciones y enriquecen la comprensión de cómo la participación y motivación de los estudiantes contribuye a un aprendizaje más significativo y a la mejora de los sistemas educativos.

Palabras clave: Participación Académica, Educación, Aprendizaje, Estudantes.

INTRODUCTION

Commitment and active participation of students in academic environments have become subjects of increased interest and relevance in educational field. In a constantly evolving world, where teaching methods and the access to information are undergoing perpetual transformation. Understanding the concept of academic engagement has become fundamental

to optimize the educational processes and promote an effective learning (Jiménez-Cortés, 2023; Paz & Rodríguez, 2023; Polushina et al., 2018; Nurhasan et al., 2023).

The decline in mental health post-pandemic has heightened the need for effective programs to address this reality; a possible strategy is the implementation of programs promoting psychological self-care to achieve the student well-being; studies conducted reveal positive correlations between well-being and self-care activities (Carmona-Halty et al., 2021; Morales & Paredes, 2023).

In this context, the current analysis delves into a scientific production related to academic engagement through a bibliometric perspective (Gómez et al., 2023). Bibliometrics, as a quantitative study method of publication and citation patterns in scientific literature, offers an objective and systematic insight of academic engagement, a topic that has been addressed over time. By examining trends, influential authors prominent publication sources and collaboration patterns, it will evidence the current state of research and possible investigations.

Through the review and evaluation of a wide range of academic works, this research aims to conduct a bibliometric analysis of the existing literature on academic engagement in order to quantify academic output, identify influential authors and journals, and assess the temporal evolution of research, providing a comprehensive bibliometric perspective with guidance for future studies in the academic field. The justification for this study is based in the importance of comprehending and bolstering research on academic engagement. This is important for enhancing the quality of education, fostering effective learning, and promoting student success in a diverse global context. By combining theoretical and practical approaches, this research aims to contribute to shaping relevant study trends aimed at addressing educational challenges on a global level.

In the following sections, a detailed analysis of bibliometric identified bibliometric tendencies will be presented, followed by a test of emerging themes and possible implications for educational practice.

LITERATURE REVIEW

The academic engagement refers to the active and committed participation in learning activities, encompassing aspects such as class participation, interest in curricular content, diligent completion of assignments and projects, as well as interaction with peers and teachers. This concept not only impacts on academic results, (Ramli et al., 2024; Stoesz et al., 2023; Wu et al., 2023).

Engaged student feel involved, satisfied and identified with their studies, condensing three components on their academic life such as compromise, energy and mental resilience, reflected in their effort and willingness to strive and persevere in the face of adversity (Hwang et al., 2023; Kelly et al., 2023).

In this section, theories that underpin the concept of academic engagement are explored, offering a profound understanding of its dimensions and determinants. In this theoretical review, we can relate the self-determination theory that explores human motivation and psychological needs that influence behavior and participation in activities, including academic domain (Md-Rami et al., 2022). Decy and Ryan on 80s decade, asserted that this theory has become a fundamental pillar for understanding the relationship between motivation and academic engagement. They maintained that individuals have a natural tendency to seek autonomy, competence, and satisfying social relationships in their activities (Kaurav et al., 2022). These three basic psychological needs are essential for fostering intrinsic motivation, which arises from genuine interest and internal satisfaction, which arises from a genuine interest and internal satisfaction in task completion. When these needs are fulfilled, individuals are more likely to involve on their activities in an active and committed way, including the learning process within the academic environment (Son & Yang, 2022a).

The self-determination theory offers a profound understanding of student engagement with their studies, and how teachers can foster a sustainable commitment (Corella et al., 2022). Hosseini et al. (2022b) explore how the three basic needs are related to academic engagement, so we have: autonomy, that refers to the sense of control and choice in own actions; when students feel they have freedom to explore topics of interest, make decisions about their learning, and apply methods that suit their preferences; they are more likely to get engaged actively and feel committed to the educational process (Kritikou & Giovazolias, 2022). Educators can promote autonomy by providing choices and opportunities to make decisions, that helps students feel more empowered in their learning (Son & Yang, 2022b).

Another way is through competence, that refers to the efficacy sensation and the ability on task solving. This process occurs when students experience a tangible progress and achieve their academic goals, their self-confidence and motivation increase (Conner et al., 2022; Frikha et al., 2022; Luria, 2022; Qingyan & Ahmad, 2023). The academic engagement is reinforced when learners feel competent in their ability to face challenges and overcome obstacles. Teachers can support competence by setting achievable goals, providing constructive feedback,

and fostering a learning environment that celebrates individual achievements (Soriano-Pascual et al., 2022; Yan et al., 2022).

Giménez-Meseguer et al. (2022) considered that satisfying social relationships refer to the connection with other individuals and the sensation of belonging to a community. Students who feel connected to their peers and teachers have an active participation in classroom and ask for help when they need it. Social support and positive integration promote a sense of belonging, which in turn nurtures academic engagement (Henderson et al., 2023). Teachers can foster social relationships by creating an inclusive environment, promoting collaboration between students, and establishing an open communication (Su & Wang, 2022).

Furthermore, they can use this approach to design pedagogical strategies that promote intrinsic motivation and student commitment, empowering them to feel competent and connected, contributing to a higher level of engagement and meaningful learning (Kirzner & Miserandino, 2023).

Along the same line we have the Theory of Flow, developed by psychologist Mihály Csíkszentmihályi in the 1970s, it is a psychological framework that explores the optimal experience of engagement and concentration in an activity (de la Herrán Gascón & Herrero, 2022). This theory offers a valuable perspective on the state of flow, which is related to academic engagement and how both concepts converge to enhance the learning process (Gao, 2023).

Flow is defined as a state in which a person is fully immersed in a task, experiencing a deep sense of concentration and satisfaction. In this state, the individual is completely focused on the activity, loses track of time, and feels challenged and competent to meet the task demands (Gupta & Priyanka, 2022). Flow arises when there is a balance between the individual skills and the challenges of the task, resulting in a rewarding and meaningful experience. When students experience the state of flow in their learning process, they are more likely to be engaged and motivated to actively participate in their studies (Kara, 2022; Li et al., 2022; Pereira et al., 2022; Barreto et al., 2023).

The key points explored by the theory are related to concentration and absorption characterized by complete immersion in task at hand. Students who experience flow in their academic work are completely focused on the content and activities, which results in a better attention and understanding. This deep concentration contributes to academic engagement, as students are dedicated to explore and understand the material rather than being passive spectators (Saberi et al., 2022; Tomprou & Hansen, 2018).

Challenge and skills constitutes key points in both the flow theory and academic engagement, both benefit from the presence of a balance between task and individual skills (Cruz-Sandoval et al., 2023; Fresta et al., 2023). The students that find academic activities neither too easy or too difficult are more likely to experience flow and feel committed with their learning. Teachers can adapt the difficulty of tasks to encourage this balance and, in consequence, enhance student engagement (Ou & Gu, 2023; Wong & Faikhamta, 2023).

The sense of achievement and gratification happen when students experience flow, generating a feeling of intrinsic accomplishment and satisfaction in their work. The emotions of progress and success contribute to engagement, as students value their participation in the learning process and are motivated to keep exploring and learning (Cheng, 2023; Reitsma et al., 2019).

For a positive learning experience, the theory of flow promotes a positive practice in the task itself. Students who have positive experiences while studying and feel gratified by their work are inclined to feel engaged and perceive learning as valuable and meaningful (de Andrade & Pagan, 2022; Mutanaffisah et al., 2022). When students experience flow in their learning process, they are in an optimal mental state that fosters active participation and commitment with academic activities (Sandoval-Obando & Muñoz, 2022). Teachers can leverage these concepts when designing teaching strategies that promotes balanced challenges, deep concentration and learning satisfaction, this will enhance student engagement and their overall educational experience (Vollmann et al., 2022).

Research about academic engagement continues to evolve in order to a better understanding of complex dynamics that influence students active and motivated participation in their learning process. Nowadays, there are several trends and emerging areas of study that are capturing the attention of researchers in this field. Some of these trends include technology and digital learning with increasing integration of technology in education, researchers are exploring how digital tools, online platforms and learning virtual methods affect academic engagement. Researchers are analyzing online learning experiences that impact student participation and motivation, as well as effective strategies for fostering engagement in digital environments (Valdivia-Yábar & López, 2022).

Equity and diversity are factors that play a role in academic engagement, where this can vary based on factors such as gender, race, socioeconomic status, and culture (Cho & Cesar-Davis, 2022; Crosby, 2022). Researchers are investigating disparities in engagement and design

of inclusive strategies that promote participation of all students, regardless of their background (Kruse, 2022; Moore et al., 2023).

Learning based in projects and experience are being investigated within the realm of pedagogical approaches, these are based in projects and practical experiences that can enhance engagement. Additionally, the direct application of knowledge in real contexts is being studied, as it motivates students and improves their connection with curricular content (Chipps et al., 2023; Keiper, 2023; Szobonya & Roche, 2023). Socioemotional learning is receiving increasing attention regarding socioemotional skills, such as emotional intelligence, self-regulation and empathy, as influential factors in academic engagement. Research is also exploring how teaching these skills can enhance students' participation and their overall well-being (Choles et al., 2022; Hunter et al., 2022; Morcom, 2022).

Flexible learning environments encompass adaptive teaching settings that cannot affect engagement, this includes the exploration of physical and virtual spaces that foster interacting, collaboration, and personalized learning (Aboraya, 2021; Carl & Worsfold, 2021; Kontrimiene et al., 2021).

Interventions and pedagogical practices constitute specific strategies to foster academic engagement. This encompasses identifying effective pedagogical approaches, incorporating motivational elements into curriculum design, and implementing support interventions for students at risk of disassociation (Burri et al., 2022; Carl & Worsfold, 2021; Gouveia et al., 2022; Majcen & Drvodelić, 2022).

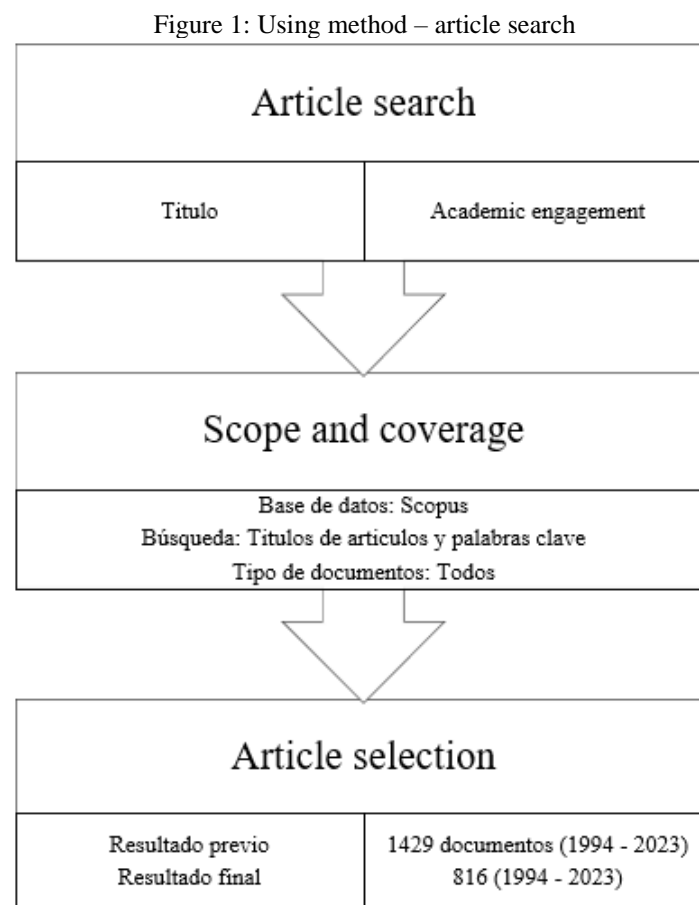
Measurement and evaluation of engagement focus on developing improved methods to measure and assess academic engagement. Researchers are seeking flexible reliable and valid indicators that can accurately measure student commitment in different contexts. (Beatson et al., 2023; Jiang et al., 2022; Pérez-Guillén et al., 2022).

METHODOLOGY

This study adopts an exploratory-descriptive approach to analyze the scientific production of academic engagement using bibliometric indicators from Scopus database. The exploratory approach focuses on discover fewer known patterns, while descriptive approach seeks to characterize trends. A quantitative approach is employed to analyze data through bibliometric analysis using Rstudio program. For the selection of manuscripts included in this review, it was essential to determine database from which data and bibliometric information would be extracted. Scopus database was selected due to its prestige in the academic sphere

and its rigorous process of indexing scientific journals. This makes this database an ideal option for conducting bibliographic reviews of research. A specific equation was established for Scopus, designed to identify manuscripts related to academic engagement. Once the manuscripts were selected using this equation (TITLE-ABS-KEY (academic and engagement)) AND (KEYWORDS (education) AND (KEYWORDS (students and learning))).

The data export procedure can be seen in Figure 1. This method is organized in three stages aimed at selecting articles to be included in the analysis. In the first stage, the study focus, typology criteria, and study areas are established based on the search equation. During this process, a total of 1429 documents were identified. In the second stage, manuscripts are selected based on the study area: psychology and social sciences, reducing the number to 816 from the years 1994-2023. The third stage involves determining which manuscripts will be the subject of bibliometric analysis and processing through a detailed review of titles, abstracts, and full content. As a result, the choice of 816 documents for the research was determined.



Source: Prepared by the authors (2023)

RESULTS AND DISCUSSION

In figure 2 a general overview of the obtained results can be observed, which served as a foundation to start the bibliometric analysis.

Figure 2: General structure of the obtained results



Source: Prepared by the authors (2023)

Among the 816 selected manuscripts, it was determined that years with the lowest scientific production related to the application of academic engagement were from 1995 to 2001 with no publications. On the other hand, a consistent increase in scientific production was identified from 2019 to 2023, with a total of 418 published manuscripts. Also, it was observed that in 2022, the highest value of scientific production was reached, with a total of 108 documents published (Table 1).

Table 1: Anual scientific production

Year	Quantity	Año	Quantity	Year	Quantity	Year	Quantity	Year	Quantity	Year	Quantity
1994	1	1999	0	2004	1	2009	21	2014	24	2019	71
1995	0	2000	0	2005	3	2010	15	2015	48	2020	71
1996	0	2001	0	2006	5	2011	30	2016	46	2021	95
1997	0	2002	1	2007	14	2012	30	2017	54	2022	108
1998	0	2003	3	2008	11	2013	27	2018	64	2023	73

Source: Prepared by the authors (2023)

As shown in Table 2, the list of the fifteen documents with the highest number of citations in Scopus database related to Academic engagement is presented. In other words, out of the 816 manuscripts selected for the study of bibliometric review, the manuscript with the highest number of citations is "Mining LMS data to develop an "early warning system" for educators: A proof of concept", with 716 citations. In second place is the manuscript "Active Learning and Student-centered Pedagogy Improve Student Attitudes and Performance in Introductory Biology", with 155 citations, representing the 18.36% of the total citations.

Table 2: Most global cited documents

Paper	DOI	Total Citations	TC per Year	Normalized TC
Macfadyen Lp, 2010, Comput Educ	10.1016/j.compedu.2009.09.008	716	51.14	9.01
Armbruster P, 2009, Cbe Life Sci Educ	10.1187/cbe.09-03-0025	348	23.20	6.38
Bethavas V, 2016, Nurse Educ Today	10.1016/j.nedt.2015.12.010	347	43.38	12.74
Rashid T, 2016, Comput Hum Behav	10.1016/j.chb.2016.05.084	293	36.63	10.76
Mclaughlin Je, 2013, Am J Pharm Educ	10.5688/ajpe779196	256	23.27	11.28
Conduct Problems Prevention Research Group Cpprg, 2010, J Consult Clin Psychol	10.1037/a0018607	238	17.00	2.99
Shapiro Hb, 2017, Comput Educ	10.1016/j.compedu.2017.03.003	210	30.00	8.33
Artino Jr. Ar, 2009, Internet Higher Educ-A	10.1016/j.iheduc.2009.02.001	202	13.47	3.70
Prior Dd, 2016, Internet Higher Educ	10.1016/j.iheduc.2016.01.001	201	25.13	7.38
Greenberg Mt, 2017, Future Child	10.1353/foc.2017.0001	192	27.43	7.62
Buckley P, 2017, Comput Educ	10.1016/j.compedu.2016.11.009	190	27.14	7.54
Lu Sj, 2015, Environ Educ Res	10.1080/13504622.2014.91124	150	16.67	9.10
Troussas C, 2020, Comput Educ	10.1016/j.compedu.2019.10369	149	37.25	12.49
Tsay Chh, 2018, Comput Educ	10.1016/j.compedu.2018.01.009	133	22.17	7.08
Chen Hl, 2008, J Eng Educ	10.1002/j.2168-9830.2008.tb00983.x	133	8.31	5.36

Source: Prepared by the authors (2023)

Regarding journals with highest quantity of published and indexed manuscripts in Scopus database, it was identified that out of the 376 journals where 816 were published, 104 of them present at least two publications, while 272 journals present only one publication. Table 3 present details of scientific journals with the highest number of publications, Proceedings - Frontiers in Education Conference, Fie " journal presents 29 publications. This journal holds an h-index of 45. Additionally, there are thirteen journals in Q1 quartile, of which three are in second to fourth place in terms of publications, this are "Nurse Education Today", "BMC Medical Education"and Sustainability (Switzerland)", with 27,25 y 25 articles each one.

Table 3: Most relevant sources

Sources	Articles	Scimago Quartile 2022	H-index
Proceedings - Frontiers In Education Conference, Fie	29	Not detailed	45
Nurse Education Today	27	Q1	92
Bmc Medical Education	25	Q1	87
Sustainability (Switzerland)	25	Q1	136
Ieee Global Engineering Education Conference, Educon	20	Not detailed	30
British Journal Of Educational Technology	18	Q1	110
Computers And Education	16	Q1	215
Proceedings Of The European Conference On Games-Based Learning	16	Not detailed	16
Proceedings Of The European Conference On E-Learning, Ecel	12	Not detailed	10
Medical Teacher	11	Q1	131

Proceedings Of The International Conference On E-Learning, Icel	11	Not detailed	10
American Journal Of Pharmaceutical Education	8	Q1	74
Computer Applications In Engineering Education	8	Q1	37
International Journal Of Innovation And Learning	8	Q3	29
Journal Of Geography In Higher Education	8	Q1	56
Teaching And Learning In Medicine	8	Q1	55
Ascilite 2008 - The Australasian Society For Computers In Learning In Tertiary Education	7	Not detailed	13
Nurse Education In Practice	7	Q1	58
European Journal Of Engineering Education	6	Q1	53
Journal Of Geoscience Education	6	Q2	41
Ascilite 2011 - The Australasian Society For Computers In Learning In Tertiary Education	5	Not detailed	14
International Journal Of Emerging Technologies In Learning	5	Q2	39
Internet And Higher Education	5	Q1	109
Pharmacy Education	5	Q4	19
Advances In Engineering Education	4	Q3	24

Source: Prepared by the authors (2023)

Table 4 and table 5 expose words present in the manuscript titles, indicating their frequency, also words that predominate in the titles are "Students" with 530 occurrences followed by "Education" con 352 repetitions.

Also, a co-occurrence network was generated, it displays the relationships or links between most occurrence words in the abstracts of the analyzed manuscripts. From figure 3 it can be observed that, among the nine most frequent words, the word "students" is the one that has the highest link strength, with 530 occurrences, indicating that presents the most prominent link strength among all the highly occurring words in the abstract of the 816 articles.

Table 4: Word's frequency over time

Year	Students	Education	Learning	Teaching	Engineering Education	Human	Humans	E-Learning	Curriculum
1994	0	0	1	0	0	2	0	0	1
1995	0	0	1	0	0	2	0	0	1
1996	0	0	1	0	0	2	0	0	1
1997	0	0	1	0	0	2	0	0	1
1998	0	0	1	0	0	2	0	0	1
1999	0	0	1	0	0	2	0	0	1
2000	0	0	1	0	0	2	0	0	1
2001	0	0	1	0	0	2	0	0	1
2002	1	1	1	0	0	2	0	0	1
2003	4	3	4	0	0	3	1	0	3
2004	4	4	5	0	0	4	1	0	3
2005	6	4	5	1	3	4	1	0	3
2006	8	8	7	5	4	5	2	1	4
2007	18	14	9	12	7	7	3	6	6
2008	27	18	9	21	12	8	4	9	7

2009	41	27	14	31	17	11	9	10	13
2010	56	32	18	39	21	14	12	13	14
2011	77	50	23	50	27	17	15	24	17
2012	97	63	39	59	37	24	22	29	21
2013	117	75	47	66	41	32	29	34	27
2014	129	81	48	72	46	33	30	38	27
2015	159	116	70	93	57	42	38	49	33
2016	193	153	89	115	71	57	50	56	54
2017	228	195	102	139	82	69	57	70	61
2018	275	223	121	158	97	85	69	78	66
2019	325	253	131	179	114	103	85	89	88
2020	367	265	150	186	133	117	93	101	97
2021	425	293	190	213	151	143	110	119	108
2022	494	327	232	235	183	170	130	138	129
2023	530	352	275	246	190	188	147	146	145

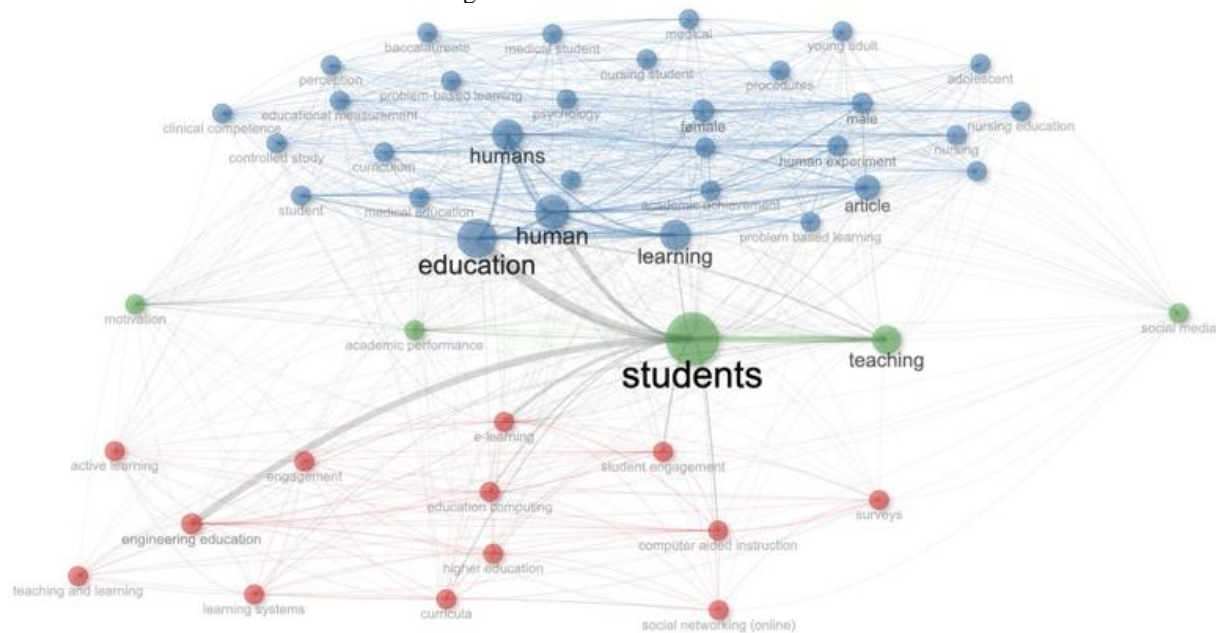
Source: Prepared by the authors (2023)

Table 5: Most frequent words

Words	Occurrences
students	530
education	352
learning	275
teaching	246
engineering education	190
human	188
humans	147
e-learning	146
curriculum	145

Source: Prepared by the authors (2023)

Figure 3: Co-occurrence network



Source: Prepared by biblioshiny software (2023)

Furthermore, it presents the most used keywords in the 816 reviewed articles

Figure 4: Wordcloud



Source: Prepared by biblioshiny software (2023)

With the purpose of categorizing them according to the addressed thematic areas, four distinct areas were identified. Table 6 show the categories, "engineering education" (1994 - 2019) whose current trend focusses on “students” (2020 - 2023), with a total of 114 occurrences. Next is "Humans"(1994 - 2019) whose current trend is “learning” (2020 – 2023) with 99 occurrences, followed by "students" (1994 – 2019) whose current focus is “learning” (2020 – 2023) with 200 occurrences. Finally, “students” (1994 – 2019) to “students” (2020 – 2023) with 320 occurrences.

Table 6: Thematic evolution

From	To	Words	Occurrences
engineering education— 1994-2019	students-- 2020-2023	Engineering education; e-learning; student engagement; computer aided instruction; curricula; higher education; education computing; surveys; social networking (online); teaching and learning; blended learning; engagement; learning systems; learning environments; professional aspects; technology; artificial intelligence; learning management system; engineering research; undergraduate students; distance education; learning experiences; online learning; project based learning; design; higher education institutions; student experiences; student learning; academic achievements; data mining; engineering; experiential learning; game-based learning; learning outcome; service learning; technical presentations; employment; gamification; information management; sustainable development; first year; first-year engineering; student motivation; educational innovations; information and communication technologies; learning activity; scaffolds; university students.	114

human— 1994-2019	learning-- 2020-2023	Learning; human; curriculum; female; humans; male; student; article; nursing; medical; adult; human experiment; young adult; academic achievement; problem based learning; medical education; educational measurement psychology; medical student; nursing education; nursing student; problem-based learning; procedures; clinical competence; adolescent; united states; questionnaire; internet; program development; baccalaureate; qualitative research; pharmacy; schools; undergraduate; clinical article; controlled study; child; teacher; leadership; learning environment; surveys and questionnaires; university; educational status; major clinical study; medical school; pharmacy student; education program; faculty; perception; united kingdom; interview; peer group; skill; school; universities; cohort analysis; cross-sectional study; distance; educational development; professional competence; satisfaction; academic success; cross-sectional studies; dental; public relations; systematic review; language; medline; outcome assessment; review; career.	99
students— 1994-2019	learning-- 2020-2023	education; australia; social media; problem solving; university sector; self-directed learning; academic research; teamwork; sustainability; knowledge	200
students- 1994-2019	students-- 2020-2023	students; teaching; motivation; academic performance; educational technology; active learning; collaborative learning; decision making; student satisfaction; flipped classroom; forecasting; quality control; self-efficacy.	320

Source: Prepared by the authors (2023)

After analyzing all data using different bibliometric indicators, it is evidenced that participation role of academic engagement, as indicated by the number of articles addressing the topic, demonstrates a growing interest in last years.

The study found an evolution in research topics, going from personal factors like motivation to broader contextual issues such as the impact of technology on participation and educational equity. The influence of key authors and institutions in shaping the field is noteworthy, as well as an interdisciplinary approach encompassing psychology, education, medicine, and educational technology. By 2022, the scientific production related to this topic achieved a high percentage, likely influenced by the post-pandemic situation that was experienced (Carmona et al. (2021).

It is worth noting that the investigated topic presents results correlated with theoretical analysis of the theories of self-determination and flow proposed by Deci and Ryan in 1980 decade, which explores human motivation and how psychological basic needs influence behavior and participation in different activities, including academic realm.

According to the analysis of the results, documents with the highest number of citations in Scopus database are demonstrated, among the 376 journals that published, 816 articles analyzed in this bibliometric review, 104 had at least two publications, and 272 journals had only one publication, indicating growing interest in researching the topic. Similarly, the

research explores how the direct application of knowledge in the real world can motivate students and enhance their engagement in the academic world.

Engagement according to (Ramli et al., 2024; Stoesz et al., 2023; Wu et al., 2023) not only influences on academic results, but also on personal and professional development of students throughout their lives. Therefore, it is important to consider that regarding its potential future directions, research on academic engagement is likely to continue delving into emerging areas such as "engineering education" "learning" and now "students" this last, with the highest number of occurrences. The complex interaction among multiple factors such as culture, technology, pedagogical strategies and socio-economic conditions could focus on how engagement relates to global education challenges, like distance education, educational equity, and preparing students for the evolving demands of the workforce.

In this regard (Conner & Nsowaa, 2022) indicate that studies about academic engagement are founded in positive psychology which supports the correct functioning and strengths of individuals to face hard situations such as stress aiming to achieve academic success.

CONCLUSION

This analysis related to academic engagement, identified patterns and trends that provide a comprehensive view of the current state of research in this field. Through the review of 816 manuscripts and the evaluation of bibliometric indicators, valuable insights have been gained that shed light on focused areas, temporal evolution, and the influence of researchers in this field.

A significant growth in research is evident, as the bibliometric analysis revealed a consistent increase in scientific production related to academic engagement over the past decades. This growth suggests a growing interest in understanding and enhancing student participation and motivation in their learning process.

The influential authors and institutions have played a significant role in academic engagement field. These researchers have contributed with fundamental studies that have set research directions guiding other scholars. It was observed that research on academic engagement is multidisciplinary, involving areas such as psychology, education, sociology, medicine, and educational technology. This approach reflects the complex nature of engagement and its interaction with various factors.

Finally, it is expected that research about academic engagement continue evolving, providing valuable information that helps teachers and policymakers in creating more effective and motivating educational environments.

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