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Article

Generational Gaps and Nursing Education: A Bibliometric Analysis from 1968 to 2021

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Abstract: The objective of this research was to analyze the evolution and trend of the generation gap and nursing education from 1968 to 2021 through bibliometric indicators. The method used is a bibliometric, descriptive and retrospective study of documents in Scopus, with descriptors "Nursing educat*", "generation*" and the Boolean operator "AND", N= 653 web documents from 1968 to 2021, and filters of type bib, csv. The search was performed on October 9, 2021, using the Bibliometrix R Package software and the Biblioshiny tool. The results indicate high scientific production in 2020 (54 articles published). This study demonstrates patterns and lines of research in nursing education, such as educational models, interpersonal relationships and organizational innovation.

Keywords: nursing education; innovation; generation gap; intergenerational relationships

1. Introduction

Bibliometric studies are gaining importance due to scientific growth and development, so it is necessary to measure research production on the topic of generational gaps and nursing education, analyzing its evolution using indicators of visibility, impact and production, with the specific objective of determining the trend and topics investigated, identifying patterns and future lines of research. The study mapped the development of the thematic in a period from 1968 to 2021 and with the information it was possible to represent metrics offered by the Software, with publications in bibtex format, an analysis was performed using the Bibliometrix "R" package. The article is organized in the following sections: literature review, where important concepts are addressed to understand the combination of attitudes, beliefs, and behaviors in the generation gap that modify education and the nursing profession. Subsequently, data are analyzed with results represented in tables and graphs, and finally, conclusions on future lines of research are addressed.

1.1. Literature Review

The significant findings of generational studies and nursing education are found from the year 2000, going through a period of recession and low production, as shown in table N.1, which reduces the information in the database.

Table N.1. Summary of main findings from 1968-2021.

Generación	Año	Autor/autores	Concepto/Características
Baby Boomer	1968	Takahashi, Y.	Cambio en sociedad, papel de la educación en enfermería ¹ .
Generación X			Época de recesión y ocultismo.
Generación Y			
Generación Z	2000	Heller, B.R., et. al.	El futuro de la educación en enfermería ² .
	2003	Randle, J.	Bullying en la profesión de enfermería
	2004	Altimier, L.	Comunicación con la próxima generación
	2006	Skiba, D., Barton, A.	Socialización profesional, procesos de adaptación de enseñanza de acomodación a la generación Net, un aprendizaje experiencial, interactividad e inmediatez.
	2009	Price, S.L.	Socialización profesional temprana y elección de carrera en enfermería.
	2012	Foley, V., Myrick, F., Yonge, O.	Creación de relación cohesiva eliminando los conflictos generacionales.
	2015	Christodoulou, E., Kalokairinou, A.	Presencia de tecnologías, cambios fundamentales en la forma de comunicarse, socializar y aprender.
	2017	Hart, S.	Desafían a los educadores, requieren cambios en las estrategias y enfoques de enseñanza.
	2019	Cherly A. Williams.	Valoran la diversidad, son optimistas, persistentes, pragmáticos, ingeniosos, capacidad de atención de 8 segundos y frugales.
	2019	Cantrell, M.A., Farer, D.	Físicamente presentes, mentalmente dislocados, falta de confianza, quieren respeto y dignidad de sus profesores.
	2020	Morrell, B.L.M., Eukel, H.N.	Innovación educativa que estimule la participación, la comunicación entre pares y habilidades.
	2020	Hampton, D., Welsh, D., Wiggins, A.T.	Prefieren métodos de enseñanza atractivos, en contra de lecturas asignadas.
	2020	DiMattio, M.J.K., Hudacek, S.S.	El aprendizaje mejora cuando pueden tomar decisiones reciben retroalimentación y apoyo.
	2020	Tsimane, T.A., Downing, C.	Modelo para facilitar el aprendizaje transformador en la educación en enfermería.
	2021	Chunta K., Shellenbarger T., Chicca J.	Estrategias para los educadores de enfermería que mejoren las prácticas que considere las características y necesidades de los alumnos

Source: Own elaboration.

In or 1968 Takahashi, Y. initiated studies on social change and nursing education, then a period of recession followed until 2000 when researchers Heller, B.R, Oros M.T., Durney - Crowley J. (2000) directed their interest to the future of nursing education. To date, research has been presented on the methods, teaching strategies, relationships and characteristics of Generation Z and Millennials. These studies have the potential to improve generational understanding in a pedagogical context, as well as to foster a culture of teaching and learning in an environment that is inclusive of generational expectations. The studies reviewed have been oriented to examine the characteristics of the nursing population and Generation Y - Z, but there is a need for research that evidences their active participation in meaningful learning; also to delve into the characteristics of the Baby Boomer, Generation X and their different traditional teaching styles.

At the turn of the century the authors Randle J.(2003) Altimier L.(2004), Skiba D., Barton A.,(2006), Price S. L

(2009) establish relationships in the concepts of generational gaps, defining important elements in communication, socialization processes and adaptation with the next generations, which leads to new challenges in teaching styles. As of 2012, the authors Foley, V., Myrick, F., & Yonge (2013). Chr Christodoulou, E., & Kalokairinou (2015), Hart, S. (2017), Williams, C. (2019), Cantrell and Farer D. (2019), Morrell B.L. and Eukel, (2020), Hampton, Welsh and Wiggins (2020), DiMattio, & Hudacek, (2020). provide valuable connections by relating generational conflicts and characteristics of Generation Z, as well as presenting suggestions in creating cohesive intergenerational relationships. In the year 2020 and 2021, studies by Tsimane & Downing, (2020), Chunta, Shellenbarger, & Chicca, (2021), mark an advance in the presentation of models and strategies to facilitate transformative learning in nursing education, considering the characteristics and needs of digitally literate learners, which influence their learning styles with distinct preferences; such as

teamwork, experimental activities, where the structure is instant feedback and integration of technologies (Erlam, 2018).

2. Methodology

Bibliometric studies regain importance as the volume of research and scientific knowledge increases, so for this writing the steps of systematic and transparent studies, based on the statistical measurement of science, scientists and scientific activity, have been taken into account. Because bibliometric research has gained popularity during the last few years and now an increasing number of researches have examined the nursing literature (Derek and Hazelton 2008). The recommended methods and techniques for a bibliometric study are met, first by a literature review, in a Word table findings were gathered from 20 articles selected for their significant concepts, in titles, keywords, and abstracts explaining important elements of the topic. The rest were purified due to the scarce relationship; and others repeat the same result; in second step by a methodology that presents an identification and collection of the databases; the third that corresponds to results presenting an analysis and a graphic representation, and the last section, concludes the main findings of the study and the future lines of investigation (Ramírez and Álvarez, 2020)..

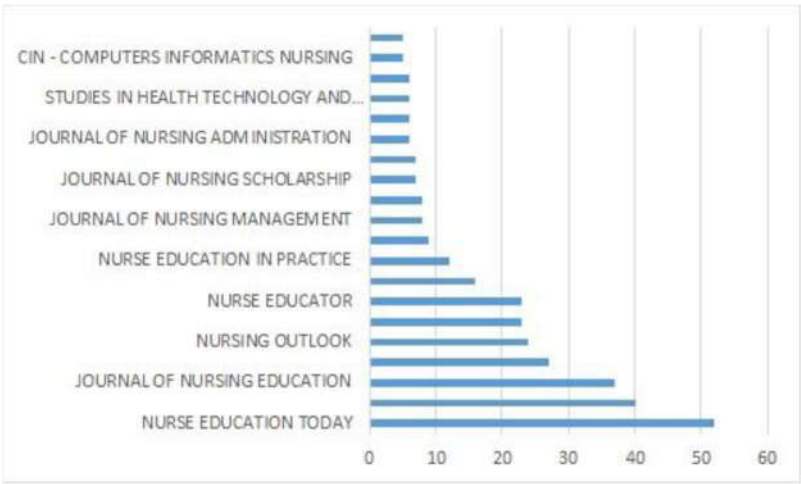
The Scopus database was used, which is the largest database of abstracts and peer-reviewed literature and has intelligent tools that allow monitoring, analyzing and visualizing (the) academic research, includes content from more than 5 000 publishers and 105 different countries (Avanzadas & Scopus, 2016)..

The descriptors were "nursing educat*" and generation*, with the Boolean operator "AND"; titles, abstract and keywords were searched. The keyword generation* was left open with the * to return all variables of the term. We obtained N= 653 results, from 1968 to 2021, of which 519 are articles, 72 in review, 23 editorials, 14 conference papers, 8 conference papers in review, 8 notes, 6 short questionnaires, 2 book chapters and 1 letter to the editor. Bibliometrix R Package software was used to analyze the data obtained through the Biblioshiny tool, some data processed in Microsoft Excel to obtain graphs and tables.

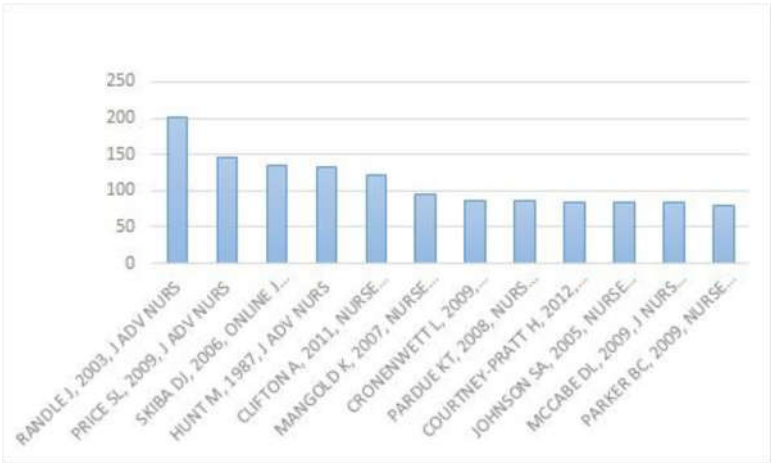
Bibliometric R Package provides a set of tools for quantitative research in bibliometrics and scientometrics. It is written in the R language which is an open source environment and ecosystem. The existence of substantial and effective statistical algorithms, access to high quality numerical routines, and integrated data visualization tools are perhaps the strongest quality for preferring R to other languages for scientific computing (Aria & Cuccurullo, 2017).. We obtained 3 files with filters of type bib, scv and an Excel file with 653 results, then an analysis was performed from the relevant statistical data.

3. Results

The graph presents 10 leading journals in the scientific production of the subject and with quality of information, in first place is located Nurse Education Today, with 52 articles disseminated and an impact factor of 3.442, ranking 6 of 124 in Nursing, in second place Journal of Professional Nursing with 40 related published articles and an impact factor of 2.104 in the 50th position out of 124 in Nursing, while Journal of Nursing Education with a factor of 1.726 for the year 2020 with 37; this according to Scimago source in the site <http://www.scimago.es/>, in addition to consulting the journals' portal.



Graph N.1. Top 10 most relevant journals from 1968 to 2021.



Graph N.2. Total citations from 1968 to 2021. Source: Prepared from Scopus data.

The graph shows the author Randle J. with 202 citations, Price S.L. with 145 citations and in third place for most citations Skiba D.J., with 135. Randle J. is positioned with the most citations in studies that demonstrate that nurses must change their context in the socialization of new generations, transforming their educational practices and the context of their work (Randle, 2003). (Randle, 2003)who sets the trend in research on negative practices and standards of nursing care. Likewise, Price S.L. and her research is directed to meta-studies of early professional socialization (Price, McGillis and McGillis, 2003). (Price, McGillis and Angus 2013)Skiba D.J., has presented articles in relation to educational innovations and intergenerational differences (Skiba and Barton, 2013). (Skiba and Barton, 2006)..

The graph shows the scientific progress of the subject since 1968, with little activity until the year 2000. Then, a slight rise is shown in 2009 with a production of 36. By 2016 the interest of the scientific community is shown in a higher production with 41 related articles; and by 2020 with 54 articles, a maximum socialization and until October 2021 with 36 articles evidencing the trend, evolution and relevance of the problem in the scientific community due to the rapid social changes and the digital explosion.

The graph shows the United States as the largest producer of scientific knowledge with 62.8% of published articles related to generational gaps and nursing education, followed by Canada with 10%, and Australia with 9.2%.

The research patterns between 1968 and 2012 are shown: nursing education, organization and management; the themes of the nursing student, the human relationship from 2013-2021 stand out.

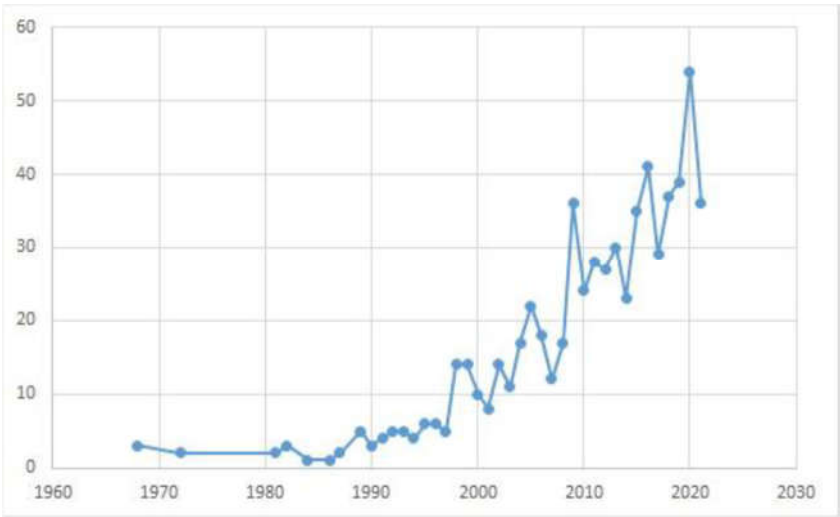
The evolution in the thematic and relevance is given by the interest of researchers in the first pattern of nursing education, (with an occurrence level of 285 in its categories and keywords), since it is strongly linked to the human aspect and related to the diffusion of innovation, faculty, program evaluation and curriculum, so they stand out as lines of research, in addition to education programs, and cultural diversity. The pattern of organization and management with an occurrence of 230. According to the database, the key words plus, models, leadership, interprofessional relations, educational model, teacher, mentors, staff development, cooperation, interpersonal communication, organizational innovation, nurse practitioners and nursing theory stand out, thus showing the trend, specifications and degree of development of the subject matter.

4. Discussion

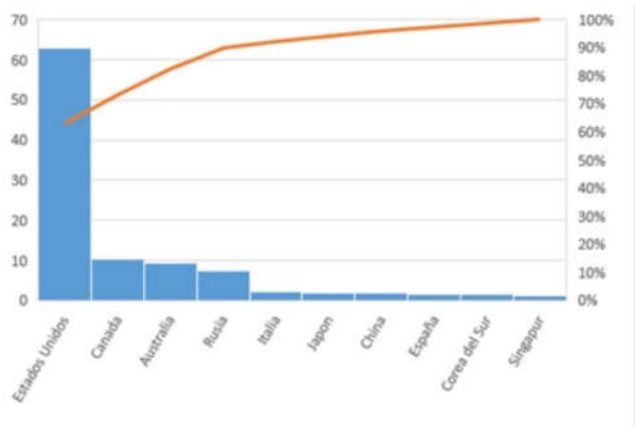
The research evidenced that out of 653 documents published from 1968 to 2021 the thematic took relevance in 2016 with a high scientific production, and a maximum socialization in 2020, showing the trend, evolution of the topic due to social changes and digital explosion, as shown in Graph N.3. In addition, it was clearly demonstrated that the United States is the largest producer of publications in generational studies and nursing education, which corresponds to the journals with the largest publications, among them Nurse Education Today of high scientific quality in the information. In more citations, it is evident the tendency of research in the direction of professional socialization and adaptation processes, whose publications are closely related to the topic of generational gaps and educational innovation, because they propose to adapt teaching strategies to accommodate the Net generation, digital literacy, experiential learning, interactivity and immediacy (Skiba and Barton, 2006). (Skiba and Barton, 2006).. The lines of research marked are program and curriculum evaluation, diffusion of innovation, educational programs and cultural diversity. Also, in the pattern of organization and management of the educational model, cooperative behavior, interpersonal communication, organizational innovation and nursing theories with a strong relationship with the human pattern stand out, as shown in Table N.2. The studies reviewed posit innovative learning strategies, such as apps to replace traditional assignments, create digital videos that offer opportunity to imagine learning assignments, and enhance fun while learning (Newton, 2020) understanding that in the pedagogical context students belong to a different generation than their preceptors, with different worldviews and expectations (Foley, Myrick, and Yonge, 2012). While the scientific activity on this topic points to new teaching methods for effective nursing education. The database provides little information on how to improve intergenerational relationships and gaps in a process of transculturation of nursing practice; how nurse educators must adapt to mobile technology awareness and how to stimulate self-directed learning in the younger generation that is often accompanied by a lack of critical thinking skills (Shatto & Erwin, 2016).

Table N.2. Thematic Evolution from 1968 to 2021.

De	Para	Palabras	Ocurrencias
educación en enfermería. 1968-2012	humano 2013-2021	educación en enfermería, currículo, facultad, evaluación del programa, difusión de la innovación, sociedades, organización de enfermería, informática de enfermería.	285
educación en enfermería 1968-2012	Estudiante de enfermería 2013-2021	Programa de educación, diversidad cultural.	230
organización y gestión. 1968-2012	humano 2013-2021	organización y gestión, modelos, liderazgo, educación, relaciones interprofesionales, actitud de la enfermera, organización, modelo educativo, maestro, mentores, desarrollo del personal, comportamiento cooperativo, cooperación, comunicación interpersonal, innovación organizacional; enfermeras practicantes, teoría de la enfermería, atención al paciente	118



Graph N.3. Annual production of the subject from 1968 to 2021. Source: Prepared from Scopus data.



Graph N.4. Scientific production by country from 1968 to 2021. Source: Prepared from Scopus data.

5. Conclusions

Bibliometrics was the instrument used to evaluate the state of knowledge related to generational gaps and nursing education, as well as its scientific production. The objective of this study was achieved through bibliometric analysis and the use of indicators of visibility, impact and production, thus determining the evolution and trend of the topics investigated, among which the patterns of nursing education, human relations, diffusion of innovation, evaluation of programs and curricula, cultural diversity, educational models and interpersonal communication can be distinguished. These patterns form the future lines of research in this topic. The progress that the subject has had at the beginning of this century was examined by means of the annual production indicator, showing that in the year 2020 a greater socialization was obtained, and in the production by countries the United States is the greatest initiator of publications; besides measuring the visibility of the subject by the total indicator of citations and with the most influential authors in the scientific community, who have published studies demonstrating that nurses must change their context in the socialization of new generations, transforming and innovating educational practices; this by means of high impact and informative quality dissemination.

In this study, literature related to generational gaps and nursing education was analyzed, it is worth mentioning that the limitation of this research was only to use the Scopus database, in addition, due to the number of documents examined, it was necessary to select the significant ones for this type of study, searching in keywords and in the database titles. The existing studies focus on the characteristics, relationships, teaching and learning methods of generations Y - Z, while little is said about the Baby Boomer and generation X. Thus, it is essential to direct research to these groups, either

in their ways of learning, transferring ideas, or in their teaching methods, so as to widen the differences of these generations and therefore to propose the point of closure between the intergenerational gaps, demonstrating for this purpose that there is a dissolution.

On the other hand, it would be convenient to use other databases such as Web of Science and Pubmed Central, which would help to enrich the results with a greater diversity of data and sources, and the nursing educational community should consider other results and other qualitative methods that deepen the study of generational gaps.

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