Comparative Study of Online and Offline Training Program in Higher Educational Institutions: A Study

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Abstract

With a focus on 294 studies, this analysis delves deeply into faculty development and training to provide an up-to-date understanding of the most recent research trends and their implications in this field. Sophisticated bibliometric techniques are employed to identify the major participants, the prolific authors, and the fascinating new subjects emerging in faculty development. The extent of the research's influence was also determined by looking at how frequently these papers are cited and who they are working with. Changes in research over time provides insight into areas of common interest and gaps in the body of knowledge. In other words, this study provides firsthand knowledge of all that has been happening in faculty development. The knowledge gathered from this analysis can inform future studies, direct academic institutions' decision-making processes, and improve the efficacy of faculty development initiatives. This study also provides suggestions for improving faculty training and development and which can directly affect the decision making of higher education academics, teachers, and policymakers.

Keywords: Online Training, Faculty Development, Offline Training, Refresher Course, Bibliometric Study, Network Analysis

Introduction:

In today's ever-changing world of education and organizational management, how faculty members and administrative staff receive training is crucial for their professional development and overall effectiveness. Traditional in-person training programs have always been the go-to for professional growth, offering face-to-face interactions, hands-on workshops, and networking opportunities. But with the rise of digital technologies, online training programs have become viable alternatives that offer flexibility, scalability, and accessibility.

This study aims to compare and evaluate the effectiveness of both online and offline training programs for faculty members and administrative staff. By analysing important factors like training design, delivery, learner engagement, support and resources, and learning environment, we hope to shed light on which mode of training—online or

offline—works best in different contexts and for different objectives.

Training and development are crucial for improving the skills and knowledge of employees in educational institutions. Online training programs have gained popularity due to their flexibility, cost-effectiveness, and accessibility. On the other hand, offline training programs provide face-to-face interaction, hands-on activities, and a more traditional learning environment. Both online and offline training programs have their own advantages and limitations, so it's important to compare their effectiveness in enhancing the professional development of faculty members and administrative staff.

This research study will help analyse the effectiveness of online and offline training programs in improving job performance, knowledge acquisition, and skill development among faculty members and administrative staff. By comparing these two modes of training, we aim to identify the strengths and weaknesses of each approach and provide recommendations for creating comprehensive and impactful training programs.

Using a mixed-methods research design that includes surveys, interviews, and performance evaluations, this study will provide valuable insights into the most effective training methods for faculty members and administrative staff in educational institutions. The findings will contribute to the existing literature on professional development in the education sector and help guide decision-making processes when it comes to designing and implementing training programs.

Literature Review:

Martin (2021) explains the importance of Google Classroom in enhancing instructions and student learning in present scenario. It is observed that Google Classroom also helps in critical thinking, communication, and creativity. However, this study also points out the need for better teacher preparation when it comes to integrating Google Classroom into eLearning. To make the most of 21st-century education, it is recommended that instructors receive ongoing professional development that focuses on the pedagogical aspects of using technology.

Rahim (2022) investigates the role of self-efficacy in moderating the relationship between online teaching competencies and student engagement among 321 distance learners at a Malaysian public university. Using a quantitative approach and partial least squares (PLS) analysis, the research found that self-efficacy and online teaching competencies were not directly related to student engagement. However, self-efficacy moderated this relationship, aligning with Bandura's social cognitive theory. The findings suggest that enhancing self-efficacy should be a focus in developing online courses and faculty development programs. Institutions are encouraged to introduce diverse online learning platforms to improve online teaching and learning experiences.

Softic et al. (2022) explains that during COVID-19 pandemic in early 2020 necessitated an abrupt shift in teaching and learning methods, requiring universities to adapt quickly to ensure educational continuity. Despite the stress and lack of contingency plans, higher education institutions managed to reorganize teaching, involving significant teacher effort, advanced organization, and continuous training. The experience highlighted the need for future educational development, emphasizing recovery programs and increased investment in education. Digital transformation has become a strategic goal for many universities. This study outlines the necessary steps for achieving digital transformation in education, the importance of continuous teacher training, and future development trends.

Galian et al. (2023) examines the facilitation profiles of 542 teachers in a multicultural municipality in Murcia, Spain, regarding family participation in smart schools. Using a validated 91-item questionnaire, the research identifies two distinct teacher profiles through cluster analysis. The first profile, with fewer teachers, less experience, and linked to pre-primary and secondary stages in public schools, shows lower family participation. The second profile, with more experienced teachers from state-subsidized primary schools, demonstrates higher commitment to family involvement. The findings underscore the need for improved teacher training to enhance awareness and sensitivity towards integrating families into the educational community.

Andaluz et al. (2023) examines the impact of COVID-19 on Spanish non-university teachers' perceptions of their digital competence. The pandemic highlighted significant deficiencies in technology use, necessitating rapid adaptation to remote learning. Using a non-experimental quantitative method and descriptive statistics, the study surveyed 168 teachers with a questionnaire based on the DigCompEdu framework. Results indicate that teachers perceive an improvement in their digital competence due to free training during quarantine. These findings support the need for a structured training plan from universities to align with the updated digital teaching competence framework as per the resolution of May 4, 2022

Aceituno et al. (2023) proposes a basic training program tailored to teachers' realities to enhance their organizational and planning skills. Through qualitative research involving responses from 20 expert online university teachers, the study evaluates the effectiveness of this training. Results indicate that while the training improves competencies and motivation for inclusion, further enhancements are needed, particularly in conceptual clarity, case studies, and didactic actions.

Gulmira M. et al. (2022) explains the importance of enhanced training standards for faculty who are in the field of distance education. It's significant to have professional teachers who can provide high-quality education which helps in diverse abilities, interests, and needs of students in distance learning. As per the present scenario, chances of remote learning are more which makes it crucial to analyze the qualities and experience of faculty members. The aim of the study is to determine whether the skills and abilities of faculty are at par for the effective remote teaching or not.

Luthra et al. (2023) explains how FDPs are important in enhancing faculty's engagement and their professional growth in higher education institutions. A survey was conducted based on quantitative analysis and 267 faculty members participated in it. Similarly, experienced faculty members participated in a semi-structured interview. In order to test the theory, PLS-SEM was applied on collected data. And based on the findings, it is observed that FDPs enhances faculty engagement and professional development. And it also has a direct impact on engagement through those very improvements.

Rahaman (2023) examines the impact of Faculty Development Programs (FDPs) on the confidence and effectiveness of young faculty members based on curriculum development, teaching, assessments, research, counselling, and adopting technology. The study generates seven hypotheses about substantial differences between the effectiveness of participants who took part in FDPs and those who did not participate. The researchers polled 193 professors from both public and private universities to collect data. They performed an independent sample t-test after combining convenience and snowball sampling techniques. The findings demonstrate that FDP members often carry out their responsibilities more successfully. These results have the potential to influence academic literature and university policy. It is recommended that future FDPs give curriculum development and student evaluation top priority in light of the findings.

Dhiman et al. (2023) explains that COVID-19 pandemic significantly impacted the education system, necessitating flexibility among institutions, teachers, and students. Institutions adopted electronic modes of education, but students often lack awareness of these platforms and face issues like fear, anxiety, and control addiction. Teacher training and curriculum articulation is essential, and courses need to be designed in multiple languages to reach rural youth. Low internet penetration requires substantial investment in digital infrastructure, and societal barriers to online education persist. The chapter emphasizes the adoption of online education in response to the pandemic, particularly in Indian higher education, evaluating factors like awareness, anxiety, network issues, and language barriers.

Kazemier et al. (2021) evaluates a faculty development program aimed at building Futures Literacy in Higher Education, focusing on three learning outcomes: enhanced perception, embracing complexity, and a new sense of agency. It also assesses participants' perceived value of the program's instructional strategies and design. Using a survey based on Wenger's value creation model and open-ended reflection exercises, the study found that all

participants reported development in one or more FL outcomes. The program's design and strategies were effective, but further research is needed to refine FL development principles.

Voitovych et al (2023) explains through Scientific methods like analysis, synthesis, systematization, and generalization was employed to compare teachers' professional readiness in modern education settings, particularly in the context of distance learning. The importance of preparing teachers to deliver courses in distance learning at higher education institutions has been highlighted. A training program titled "Creating distance learning courses on the Moodle platform" was developed and implemented to equip teachers for distance education. Successful distance learning implementation requires training teachers to effectively apply distance learning principles and utilize diverse learning forms.

Rama et al (2022) analyses the interactions among various aspects of Faculty Development Programmes (FDPs) and their outcomes using data from 375 participants. Employing structural equation modelling, the study finds that the relevance of FDPs positively affects attitude change, which in turn enhances trainee satisfaction. Satisfaction further boosts trainee confidence. However, when controlled, satisfaction and confidence show a negative correlation. The study's structural relationship estimation is novel, suggesting avenues for further research.

Oikawa et al. (2023) explores that Simulation-based education (SBE) is a practical teaching strategy widely used in healthcare education, grounded in theories like experiential learning and reflective practice. It emphasizes patient safety and requires specific facilitator skills distinct from traditional methods. Faculty development programs train simulation facilitators in creating learning objectives, designing scenarios, and developing assessment processes. Hands-on experience and peer discussion are crucial for deepening understanding.

The COVID-19 pandemic necessitated remote faculty development, leading to the use of digital technologies for e-learning and synchronous/asynchronous learning. This study discusses domestic and international practices, addressing barriers and considerations for successful remote SBE faculty development.

Phutela & Grover (2023) explains that Massive Open Online Courses (MOOCs) offer lifelong learning through virtual communication. Despite high enrolment, MOOCs face high dropout rates due to student disengagement. Facilitators use Digital Learning Technologies to boost engagement, but challenges like lack of immersion and socialization persist. Metaverse is seen as an immersive platform to enhance student engagement in MOOCs. This study explores Metaverse's role in student engagement, focusing on Tier I city instructors in developed countries. Findings suggest Metaverse can improve engagement, but instructor training is crucial. Privacy concerns also need attention. The research benefits Higher Educational Institutions, Metaverse developers, and government bodies.

Alt (2023) examines two factors influencing teachers' online instructional practices during COVID-19: professional training and school support for distance learning, and teachers' self-efficacy and attitudes towards it. Using a mixed-methods design, data from 327 Israeli schoolteachers were analyzed through a phenomenological paradigm. The empirical model included professional, personal (psychological), and pedagogical-practical aspects. Findings revealed that teachers felt more capable of using competency-based learning strategies than they actually did, focusing more on maintaining discipline than collaborative practices. The study suggests that teachers' perceived efficacy in distance learning can be enhanced through professional training and technical and emotional support.

Jasmina et al. (2022) investigates online teaching in higher education during the 2021/2022 academic year amid the Covid-19 pandemic, using the Community of Inquiry (CoI) framework. The study, involving 808 students from six countries, focused on social, teaching, and cognitive presences in online teaching. Results showed varying levels of CoI presence across countries, with Russia and Romania scoring highest. Teaching presence was most prominent, followed by social presence, while cognitive presence was least represented. Recommendations include

technological and pedagogical training for teachers, student support in using digital tools, and IT assistance. Enhancing cognitive presence is crucial for improving online teaching effectiveness.

Rudenko et al. (2021) examines school and college teachers' attitudes towards distance learning in the Sumy region during the 2020 pandemic. Data from online surveys conducted in May and November 2020 were analyzed, focusing on factors like technical support, professional training, administration support, challenges in distance teaching, and teachers' psychological attitudes. Results indicate teachers recognize the importance of enhancing digital skills, self-education, and reflective practices. Challenges include effective automated control, student assessment objectivity, low student responsibility and motivation, and academic integrity issues. Recommendations include continuous professional development, experience sharing, and addressing student motivation and academic integrity for successful online education implementation

Srimathi & Krishnamoorthy (2019) explains that the shift to Outcome Based Education (OBE) in higher education highlights learner-centered approaches, focusing on active learning to promote higher-order thinking skills. Despite existing research on learning methods, implementing educational reforms for active learning and providing ongoing training are uncommon. Assumptions about subject matter experts being effective teachers are challenged. Faculty face challenges in classroom planning, activity selection, technology integration, and assessment tools. Continuous faculty training is essential to develop diverse skills for active learning implementation. The study underscores the necessity for effective faculty development programs on Active Learning Methodology (ALM) to enhance learner proficiency.

Miftari (2021) aims to investigate online learning strategies, drawbacks, advantages, and potential solutions in various contexts. They make use of surveys, data from schools, and conversations with those who are engaged. Their study highlights issues with online learning, teacher preparation, and student grading that arise during illness.

They also demonstrate the opportunity to reconsider teaching methods and introduce fresh approaches in universities and schools.

In 1996, Kirkpatrick developed a method to check if employee training works well. It has four steps to follow. The first step checks how trainees felt about the training which is important for deciding what to do next and keeping students interested. The second part looks at what the trainees learned, including their new knowledge, skills, and ways of thinking. The third step inspects how the trainees act after the training. The final part sees how the training helps the business, like making more sales, getting more work done, making more money, and doing a better job. This method is a complete guide to help companies make their training better so their workers can grow and the company can do well.

Branch (2009) writes about the ADDIE process, which has five parts: Analyse, Design, Develop, Implement, and Evaluate. This way to design lessons works well. "Instructional Design: The ADDIE Approach" talks about ADDIE and how it works with today's tricky school styles, like classes on the internet. This study aims to teach basic lesson design because most of the people need good learning tools. Many new designers and students think ADDie's ideas are key to making great school stuff, but other ways to teach don't always talk about ADDIE. This study stays simple putting practice before big ideas and including facts to help more people use it.

Keller (1987) explains ARCS Model of motivation emerged from the need to better comprehend factors influencing learning motivation and address related challenges systematically. This model integrates four key categories of variables covering various aspects of human motivation research and aligns with common instructional design frameworks. After development, the ARCS Model underwent field testing in two teacher education programs, showing promise in aiding designers and educators. Further evaluation through controlled studies is recommended to explore its efficacy and critical attributes fully. The ARCS Model demonstrates potential for enhancing motivation in learning contexts, prompting the need for deeper investigation into its effectiveness and application.

Huey (1913) focuses on the education of intellectually disabled children, emphasizing the qualifications required for teachers in such classes. Teachers should possess high intelligence, expertise in manual and industrial training, primary grade teaching, household work, and specialized knowledge in the psychology and pedagogy of mental disabilities. The classes should cater to children with developmental delays and those with arrested brain growth. Common misconceptions, such as the need to focus solely on academic subjects and brain development exercises, should be dispelled. Emphasizing habit formation, ensuring daily achievements, and advocating for home visits by teachers are crucial for the success and well-being of these children, addressing the challenges of home supervision and care.

O'Moore (2000) highlights the national demand for structured pre-service and in-service teacher training programs focusing on bullying and victimization. It explores key areas in teacher education crucial for reducing bullying incidents in schools. The urgency for teacher training was underscored in Ireland following a student's tragic death after enduring five years of bullying. Emphasis is placed on teachers comprehending the role of self-esteem in bullying dynamics. Findings reveal that both bullies and victims exhibit lower self-esteem levels compared to their non-involved peers, underscoring the significance of addressing self-esteem in anti-bullying efforts.

Enache (2015) examine various factors influencing the academic performance of higher education students, with a focus on teacher training, both initial and ongoing, and psycho-pedagogical preparation. The study seeks to establish connections between educators' interest in professional development activities and their impact on teaching effectiveness and student motivation. The declining interest in pursuing higher education underscores the urgency of addressing teacher education. Training of teachers and their expertise in psycho-pedagogy does not directly affect raising interest of students for higher education, but it plays a important role in engagement of students, their academic success and on their future career choices.

Cejudo et al. (2015) provide crucial information for the first phase of training of educators in the European Higher Education Area. On the basis of scale of importance and training needs in emotional education, data was collected from 265 participants. Data was analyzed using various types of analysis like factor analysis, correlation analysis and descriptive statistics. Based on the findings from reliable sources, it is observed that major focus needs to be on the requirement for training in order to maintain emotional competencies.

Vlasova et al. (2019) identified various training method that enables teachers to take the right path in their career in order to achieve their long-term goal. With the help of adapted methodology, interested students are provided with difficult assignments which leads to development of a strong foundation of knowledge.In this study, the method of training is quite successful in preparing the aspiring teacher workforce. With the application of this methodology, trainees have enhanced their readiness and excitement for their jobs, as well as they try to design creative learning environments.

Higueras-Rodríguez et al. (2020) examine basic teaching techniques and training which are required to improve learning by using play as a teaching tool in this study. This study point out the important parts of different programs which used fun way of teaching suggested by the Andalusian Government's Education Ministry in Spain. They want to describe and sort out new ideas and projects that use fun methods in this special study. They find 217 programs that use these fun ways in schools. The study shows that teachers have special training materials to help them get better at using fun as a teaching tool. It focuses on professional growth chances that don't happen at a university.

Da Silva & Silveira (2020) focus their study on the challenges faced by deaf students when they try to get into college in tech classes. The study points out the main hard parts these students meet when they try to learn about technology in special centers that teach people how to use tech tools and get ready for official tech tests. It also shows that these places don't have everything they need yet to help students who are deaf or hard of hearing. As more and more of these skilled people join tech and college programs, it's

important for the places that teach these skills to change their classes so students with hearing problems can join in too.

Gao et al. (2022) found in his research that online faculty professional development (OFPD) in higher education has grown, but lacks quantitative investigations. A bibliometric analysis of 248 publications from Scopus revealed a 14.11% annual growth rate over 25 years. Top journals were Journal of Asynchronous Learning Network and Computers and Education. Peter Shea was the most impactful author, and Maria Northcote the most productive. America led in research activity, with Asia emerging. "A Research Agenda for Online Teacher Professional Development" by Dede et al. was highly cited. Themes included pedagogy training and online community building, reflecting the rise of online teacher development, notably due to Covid-19.

Ertem&Avpay (2023) have observed that scholarship of teaching and learning (SoTL) is vital in higher education, influencing teaching, research, and service. A bibliometric analysis of SoTL in higher education was conducted, reviewing 1491 studies in Scopus and 1002 in Web of Science up to 2020. Notable sources like "ASEE Annual Conference" and "Teaching Sociology" were identified. Authors Kreber, Healey, and Marquis stood out. Student voice, scholarship, and learning tips were key themes. Temporal analysis revealed focuses on identity and critical pedagogy in Scopus, and leadership and sustainability in Web of Science, showcasing the evolving landscape of SoTL research.

Matcharashvili et al. (2014) explored that analysis of research productivity among scholars in Georgia aimed to address Georgia's low ranking in international scientific articles. Using SRNSF databases from 2007 to 2013, bibliometric indicators of project leaders were examined. Results showed only 58% of project leaders had publications in Scopus. Reviewer evaluations did not correlate with project leaders' bibliometric data. Despite funding, Georgia faced challenges in research productivity. To enhance research output, a new evaluation system combining peer-review and bibliometrics is recommended.

These findings are valuable not only locally but also contribute to global discussions on research evaluation methods, aiding research funding policies in transitioning countries.

Ellegaard & Wallin (2015) explained that bibliometric methods are now essential in research evaluation, particularly in scientific fields and university rankings. The methodology is widely used to study science and assess institutions globally. This study analysed bibliometric literature from Web of Science, categorizing it into Information and Library Science (ILS) and non-ILS groups. Citation analysis revealed increasing impact in the non-ILS category since 1994. Keyword analysis highlighted popular subjects, with multidisciplinary articles having the highest impact. The study discusses implications for using bibliometric methods in various contexts, noting shifts in contributing countries and a self-reinforcing referencing pattern.

Ellegaard (2018) explains that bibliometric analysis enables scientists to collaborate frequently. Various approaches are also discovered in the field of Library and Information Sciences (LIS) after examining frequency of citations and publications. After analysing popular articles related to bibliometrics, it is found that cross- referencing between LIS and Non-LIS fields is not available. Which explains that some areas of bibliometrics are unexplored and there is requirement of more studies on such areas.

Bibliographic and network analysis using 'VOS viewer'

The VOS Viewer software is a very powerful tool which is used for research using network & library metrics. Visualization is one of its important features, which helps researchers to create interactive maps and it has a major advantage to display library data.

Moreover, Vos Viewer helps in clustering objects which appear together and allows researchers to draw trends and popular products. Vos Viewer has an excellent capability of network analysis. It displays network between items like author's keywords or articles, which makes it easy for researchers to understand the key authors or subjects in a field of study.

Additionally, VOS viewer gave users other methods to view data by allowing them to customise the appearance to suit their research objectives. It is easy to use and all researchers can use it well. This makes VOS viewer a super useful tool for deep studies of library metrics and networks.

Research Methodology:

The data set was generated using the following steps:

Study Search.

Research articles were selected from the Scopus database as this database helps in research and covers a lot of scientific writings. Which includes articles from magazines, papers from meetings, and documents about new inventions. Scopus makes it easy to find many different writings. Scopus provides a list of articles that have been reviewed by other professionals, ensuring that the data users obtain is reliable and sound for their job.

The tools provided by Scopus allow researchers to see who has cited a certain article. By examining metrics such as the h-index and the quantity of times their work has been mentioned by others, they are able to assess the value of their work and observe trends in these citations. It encourages them to see how much their labour is appreciated by others. People can also search for writings in an intelligent manner with Scopus. Users are able to select what they wish to look for, such as the name of the author, key words, and the creation date of the work. This aids them in locating the precise texts they require.

Furthermore, the integration of Scopus with various research management tools and platforms enhances workflow management for researchers, making it a versatile and indispensable tool for academic research and scholarly communication. The study searched Scopus using "TITLE- ABS- KEY" advanced search for keywords "Faculty Development" "Teachers," and "Training".

Inclusion and Exclusion Criteria

Since key Industrial fire research started showing up 1972 onwards, this study has taken 1972- June 2024 as the tenure for the article selection. To align with the theme of this study, articles belonging to the following disciplines: 'Social Sciences,', 'Business Management', 'Psychology' and 'Decision Sciences' were considered for the study.

Studies having 'Faculty Development' as its subject matter were considered. Any non-customer subject matter like 'Student Training,' etc. was excluded from this study.

Data Cleaning, Extraction, and Analysis

Data cleaning was performed in the Scopus comma-separated values (.csv) file. There were certain incomplete records and duplication errors that were removed. A total of 294 studies were selected for the final analysis.

Vos viewer used the information related to the major faculty development publishing journals, faculty development training authors' production over time, key faculty training articles, top contributing countries, and top contributing organisations.

Network analysis using 'VOS viewer' was conducted on these studies. 'Visualization of similarities' abbreviated as 'VOS viewer' maps based on similarity, to create a two-dimensional bibliographic network.

The type of analysis used was 'Co-authorship' and the unit of analysis were 'Authors' & 'Countries', then another type of analysis was also used which is 'Co-occurrence" and the unit of analysis was 'author keywords.'

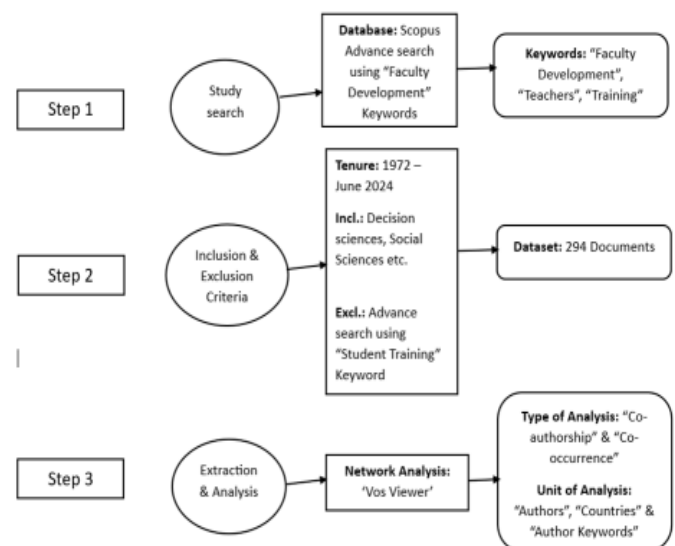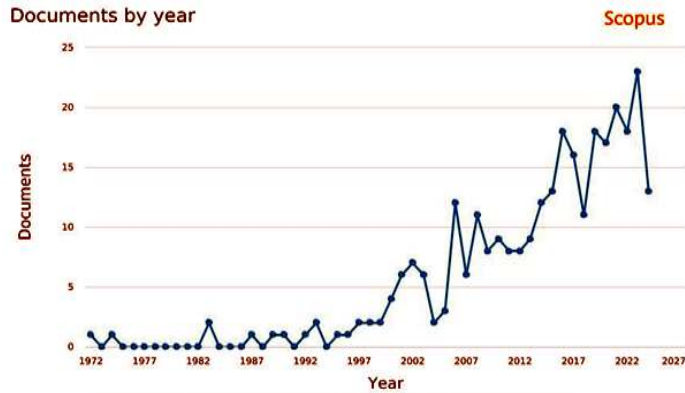**Figure 1: Summarises this section in the form of a Flowchart.**

Figure 1:Research Methodology Summarisation

Results:

**Figure 2: Publications by year**

Upon analysis of Figure 2, it is evident that the highest number of publications pertaining to faculty development, teachers, and training were released in the year 2023. Interestingly, there is a consistent flat line observed between 1975 and 1982, indicating a notable absence of publications during that period concerning faculty development, teachers, and training. Notably, there is a noticeable surge in publications post the Covid-19 pandemic, suggesting an acceleration in research output in this area following the global health crisis.

Figure 3: Publication by Author
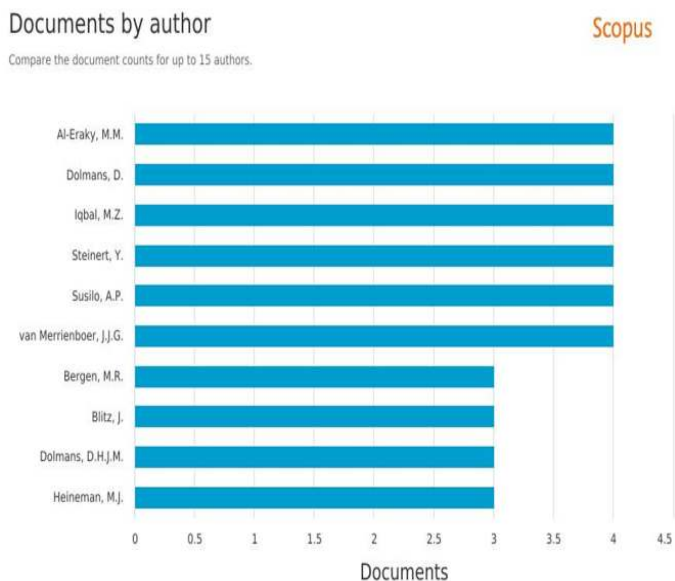
Upon examining Figure 3, it is apparent that among the top ten authors with the highest number of publications related to faculty development, teachers, and training, six authors stand out with four publications each. These prolific authors include M.M. Al-Eraky, D. Dolmans, M.Z. Iqbal, Y. Steinert, A.P. Susilo, and J.J.G. Van Merrienboer. The remaining four authors within the top 10 list have three publications each focusing on faculty development, teachers, and training.

**Figure 4: Publications by Organisations**
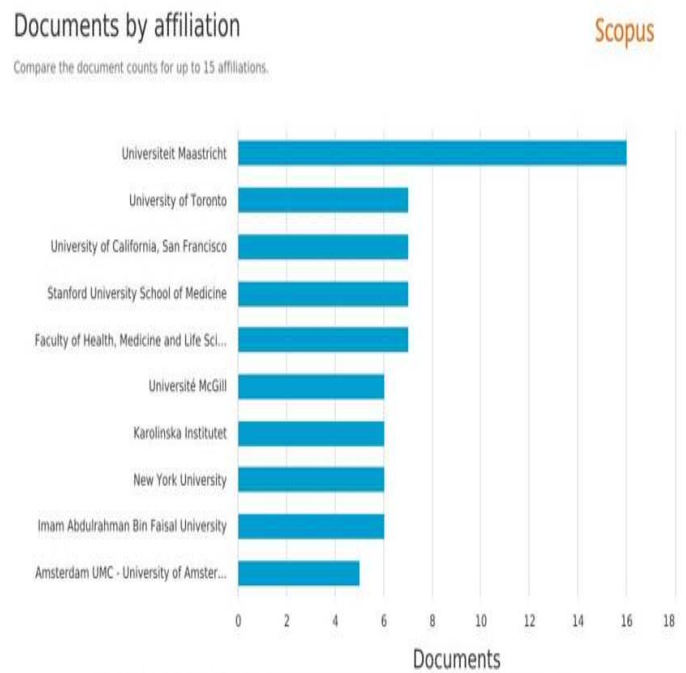
Upon analysis of Figure 4, it is evident that among the top 10 publishing organizations, the University of Maastricht leads with the highest number of publications related to faculty development, training, and teachers, totalling 16 publications. Following closely behind are four organizations, namely the University of Toronto, University of California, Stanford University School of Medicine, and the Faculty of Health, Medicine, and Life Sciences, each with 7 publications focusing on faculty development, training, and teachers. Conversely, the University of Amsterdam ranks lowest in the top 10 organizations list, with only 5 publications in this domain.

Figure 5: Publications by Country
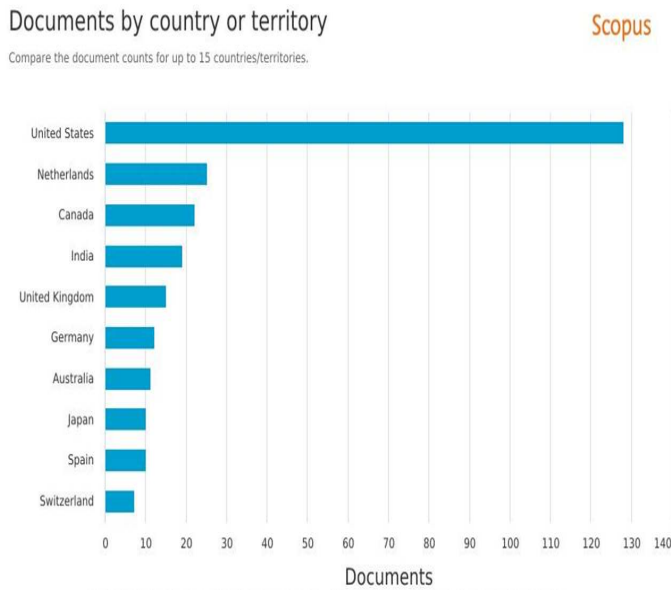
Upon scrutinizing Figure 5, it is apparent that the United States leads in the number of publications related to faculty development, training, and teachers, with a substantial count of 128 publications, while the Netherlands follows with a significantly lower count of 25 publications. Among the top 10 countries, Switzerland exhibits the least contribution to publications on faculty development, training, and teachers, with only 7 publications in this area.

Figure 6: Type of Publications
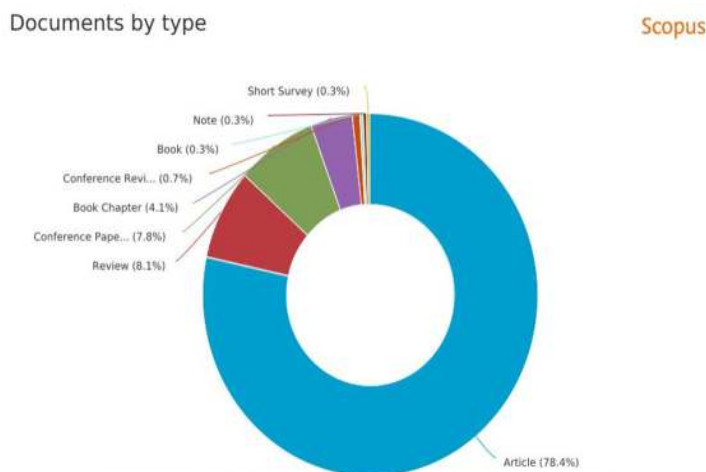
Upon analysis of Figure 6, it is evident that the majority of publications concerning faculty development, training, and teachers are research articles, accounting for 78.4% of the total publications in this domain. Following research articles, reviews and conference papers contribute 8.1% and 7.8% respectively. Publications in the form of books, notes, and short surveys have the lowest representation in the field of faculty development, training, and teachers, each comprising only 0.3% of the total publications.

Figure 7: Subject Area of Publications
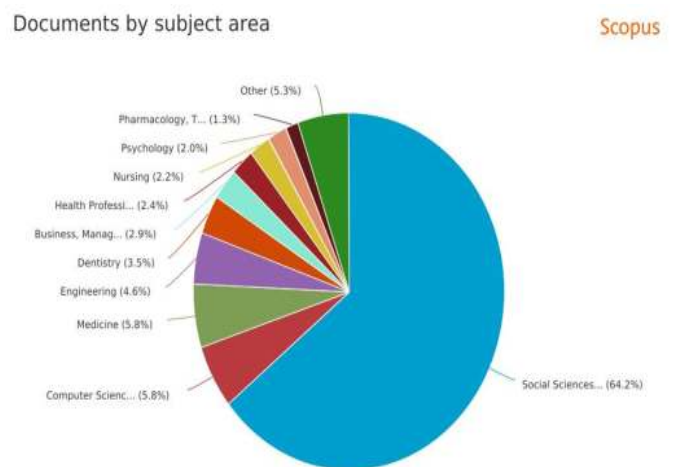
Upon scrutinizing Figure 7, it is evident that the majority of publications associated with faculty development, training, and teachers fall within the social sciences domain, representing 64.2% of the total publications in this field. Subsequently, the domains of Medicine and Engineering contribute 5.8% and 4.6% respectively. The domains of psychology and pharmacology have the least representation in publications related to faculty development, training, and teachers, accounting for 2.0% and 1.3% respectively.
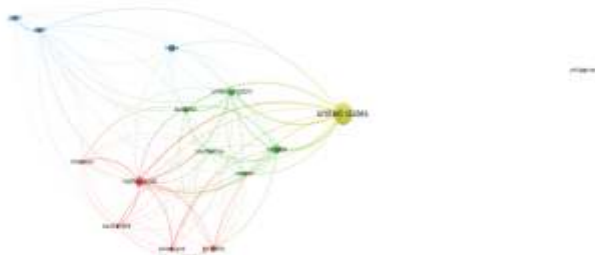
Analysis:

Utilizing VOS viewer for co-authorship analysis with a focus on first authors as the unit of analysis, we generated a network of authors who collaborated on specific articles or documents. This network is illustrated in Figure 8.

Figure 8: Co-authorship with Authors
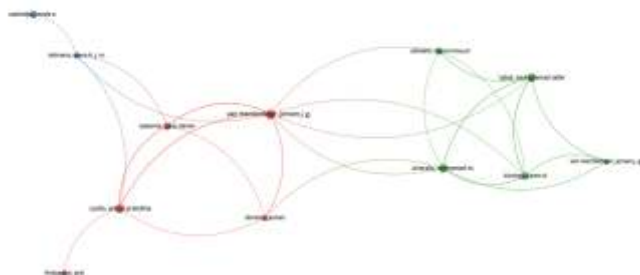
Utilizing VOS viewer for co-authorship analysis with a focus on countries as the unit of analysis, we constructed a network of countries that collaborated on specific articles or documents. This network is illustrated in Figure 9.

Figure 9: Co-authorship with Countries

Utilizing VOS viewer for co-occurrence analysis with a focus on author keywords as the unit of analysis, we established a network of keywords utilized by authors in their articles or documents. This network is depicted in Figure 10.

Figure 10: Co-occurrence with Author Keywords
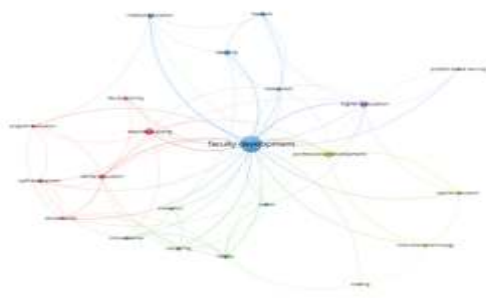
Limitations & Conclusion:

The study is subject to several limitations. Firstly, it focuses solely on journal articles within the Decision Science & Social Science domain, omitting conference papers, books, and book reviews. Secondly, the study's scope is restricted to articles published up to June 2024 and thirdly, the study exclusively utilized the Scopus database.

Subsequent research endeavours could incorporate a broader range of significant works beyond journal articles. Given the ongoing evolution of the field, a follow-up bibliometric and network analysis is warranted.. Future researchers are encouraged to consider additional databases such as Web of Science, Shodhganga, Google Scholar, among others, to enhance the collection of articles for network analysis.

The Major contributions of this paper are as follows:

This study introduces a novel approach to quantifying and ranking the literature on faculty development, encompassing significant articles, journals, countries, organizations, and authors. This methodology aids in tracing the evolution of research on faculty development programs over time. Additionally, the paper fills a gap by presenting a thorough bibliometric and network analysis of the collective research efforts on faculty development, offering detailed insights into its framework.

Furthermore, the network analysis output yields a research agenda that guides researchers in this field, highlighting areas for further exploration and addressing the identified research gaps in Faculty Development & Training.

In conclusion, this study highlights the significant articles, journals, countries, authors, and organizations in the realm of "Faculty Development & Training." It also outlines a future research agenda based on the findings. The study provides valuable theoretical and managerial insights.

However, despite the thorough bibliometric and network analysis conducted, a subsequent mapping exercise is recommended to keep pace with the evolving landscape of this domain.

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