

## Self-efficacy, Psychological Wellbeing and Digital Competence among Higher Education Teachers: A Systematic Literature Review

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### ABSTRACT

Growing digital competence can be difficult for teachers when the scenery of technology tools is rapidly changing. Psychological wellbeing and self-efficacy sustain mental health and confidence in embracing digitalization in pedagogical methods. However, there is a lack of systematic evaluations to determine if these factors enhance digital competence within Higher Education Teachers (HETs). The study conducted systematic review of 36 journal articles from Scopus and Google Scholar database from year 2015 to 2025 using PRISMA framework. The study aim is to investigate whether self-efficacy and psychological wellbeing within teachers boosts self-confidence, motivation, and psychological resilience in using digital tools in their pedagogical practices, and provide future research prospects. The study reveals that psychological wellbeing and self-efficacy significantly enhance teachers' digital competence in Higher Education Institutions (HEIs). Higher self-efficacy positively impacts digital competence, while psychological wellbeing directly and indirectly enhances it. However, there is a lack of research on the relationship between these factors, preventing teachers from integrating technology-driven pedagogical practices. The findings provide a path forward for developing effective strategies by focus on self-efficacy and psychological wellbeing in technology-driven pedagogical practice and provides future directions..

**Keywords:** Digital Competence; self-efficacy; psychological wellbeing; teacher psychological resilience; technology integration

### 1. INTRODUCTION:

Global education has changed dramatically in the 21<sup>st</sup> century due to the fast advancement of digital tools, environmentally sound, the COVID-19 pandemic, and natural disasters, all these have driven the demand for digital competency globally (Huong et al., 2025a). The fast-paced technological advancement demands that teachers require digital literacy to overcome challenges in developing digital competence and effectively engage in digital based pedagogical practices (Amhag et al., 2019a; Huong et al., 2025b)Huong et al., 2025b). The forced digital transformation period has shown that institutions of higher education can maintain teaching-learning continuity, but it also demonstrated that much work remains to be done to effectively use digital tools in higher education for equity, inclusion, and quality commitment. Additionally, teachers' attitudes and beliefs are important factors that influence how they use technology in the classroom (Nagy & Dringó-Horváth, 2024). Numerous factors affect the degree and efficacy of digitalization; these should be taken into account both separately and in combination, keeping in mind how they affect one

another. Institutional support, educators' perceptions of digital tools, educators' digital competency, technostress, self-efficacy, and the degree of tool use are among the factors commonly studied in the context of education (Nagy & Dringó-Horváth, 2024). (Amhag et al., 2019b) study indicate that integrating digital competency into teacher education programs is still a challenge for pedagogical purposes. (Lemon & Garvis, 2016) identifies research needs teachers professional and personal access to practice and gain confidence. Although schools no longer face a shortage of technology, teachers still find it difficult to incorporate it into their teaching strategies, according to Organization for Economic Cooperation and Development (OECD, 2008). The issues mentioned by OECD (2008) include the lack of appropriate incentives for teachers to use technology in the classroom, their reluctance to define what technological teaching looks like, and the dearth of research-based evidence to guide teachers on effective ways to integrate technology into their lessons. Additionally, teachers have not been received enough assistance other than acquiring specialized technological training in integrating technology in their pedagogical practices(Lemon &

Garvis, 2016b). From the prior studies we can say that extrinsic factors such as, training, availability of technology and institutional support are not the presentday problems in incorporating digital based classroom rather researchers and policymakers to focus on intrinsic factors of the individuals such as, self-confidence, psychological conditions, psychological traits, academic burnout and emotional state to adhere themselves and make them significantly important in digital based pedagogical practices (Lemon & Garvis, 2016a;

Raphael & Mtebe, n.d.-a; X. Wang et al., 2021a).

Beliefs about one's own capabilities shape how people behave and exert effort in pursuit of goals and in difficult circumstances (Huong et al., 2025a). According to Bandura (1977), self-efficacy is the conviction that one can carry out specific actions or accomplish specific tasks. According to Bandura's social cognitive theory (1986), self-efficacy has a significant impact on how someone behaves when completing a task, i.e., their capacity and readiness to take action (whether to attempt, how much effort to give, whether to continue in executing the activity). Teachers efficacy in teaching is crucial to comprehending how they are competent in acquire effective teaching methods (Nagy & Dringó-Horváth, 2024). From existing literature self-efficacy is shaped and enhanced by four fundamental sources: performance experiences; vicarious experiences; social persuasion and physiological feedback. First, Performance Experiences i.e., active participation with the educational technologies strengthens their selfperceived competence. Second, seeing peers or professionals effectively integrate digital technologies strengthens one's sense that one can do the same. Third, social persuasiveness, which includes peer cooperation, mentorship, and institutional backing, increases confidence in integrating technology based teaching methods. Lastly, Physiological Feedback, such as anxiety, excitement, reducing workload pressures and emotional management strategies can influence self-efficacy to varying extent (Huong et al., 2025a). All these factors strengthens self-confidence within teachers to actively participate in implementing digital tools in pedagogical practices. Other people's encouragement and encouraging remarks can boost one's self-efficacy. One way to learn is to observe experts and peers. This is not just about observing peers or more experienced teachers, but also about the younger Gen Z and Gen Alpha generations. Seeing others succeed gives important examples and can boost confidence before one feels ready. Every of these elements helps teachers become more confident in themselves (Huong et al., 2025a).

A common topic during the pandemic has been psychological well-being. For example, Cao et al. (2020) identified how the COVID-19 epidemic affected university students psychologically and finds that individuals had varied degrees of worry and anxiety. Younger adults' increased levels of anxiety, stress, and depression during the pandemic had a detrimental effect on their personal and professional lives (Wang et al., 2021). The transition to technology-based education has led to stress and disengagement among students lacking digital skills and perceive digital education negatively,

while collaborative help-seeking and learning agencies can improve mental health and participation, socio-economic status also guides digital competence and psychological responses. (Wang et al., 2021). Previous study also indicates that the Self-Determined Theory includes three psychological demands: relatedness (interactivity and connectivity), competence (feeling effective in achieving desired goals), and autonomy (the feeling of agency and volition). When the three psychological demands are met together, intrinsic motivation can grow, making students more resilient in overcoming obstacles and performing better in class. However, a lack of one of the three psychological needs can lead to amotivation. Prior studied only focuses on Students Psychological wellbeing to enhance their mental health and confidence to cope up with changing academic digital environment (Wang et al., 2021). Yet, very few studies have found to measure the psychological state of a teacher to perform pedagogical practices better in the classroom. Psychological interference served as a conventional option. However, by looking back to the origin of mental and emotional issues associated with online learning, we also need to think creatively and create strategies from a different perspective to successfully maintain teacher's mental resilience.

In the present study we focus on teacher's self-efficacy and psychological wellbeing can be the influential factors and propose future directions to enhance digital competence within Higher Education Teachers (HETs) after reviewing relevant articles selected from Scopus databases and Google scholar database. Prior literature has shown lack of research measuring teacher's psychological conditions, self-efficacy and mental load which contributes directly or indirectly to amotivation, low self-confidence and disbelief in contributing digital-based pedagogical practices which enhance digital competence in HET. The objective is to obtain a comprehensive overview on teacher's self-efficacy and their psychological wellbeing be the factors to enhance their digital competencies during classroom teaching with the help of a

systematic literature review and bibliometric analysis.

## Methods

The study conducted a systematic literature review using VOS viewer software and bibliographic analysis in order to guarantee a transparent and consistent procedure. In this investigation, the well-defined Preferred Reporting Items for Systematic Reviews and Metaanalysis (PRISMA) guidelines were followed. This study employed the domain-based synthesis approach, which helps identify the gap and is helpful when the issues of concern are dispersed or diversified. of the state of the art in the field of. For this study 37 documents from Scopus database and google scholar database and publication time ranging from 2015 to 2025 (until June) are selected. This study used the following keywords in the Scopus and Google scholar database for the study and applied the step of filters: (1) Identified records of documents initially from Scopus database is 117 and google scholar database is 39500 by using keywords and subject area. (2) Records of document type articles are included and rest are

excluded. (3) Records of articles were excluded from title and abstract screening. (4) Duplicate articles from databases are excluded. (5) Only English language articles and fully text articles are included. From Scopus database articles are searched using keywords “Digital Competence AND Selfefficacy” and “Digital Competence AND Psychological Wellbeing” and also the records belong to the subject area “EDUCATION” are considered. In between the keywords boolean AND is used with a view to search such articles whose topic is concerned with all the keywords. After the search 117 such records are found. Further these records are screened. The records are of document type article, review records, Book chapters and Conference. For the present study, among these types of document records only journal articles are considered. The review records, book chapters and conferences are not taken in account. As a result, journal article is kept as one of the screening criteria and after screening 92 records remained. From the 92 articles, 64 articles are excluded on the criteria of title and abstract screening, and rest 28 articles are included. Further screening among 28 articles, 6 articles are excluded based on language other than English and the articles are not full text. The final stage articles are taken for review. So, from the Scopus database the total number of articles that is taken for final review is 22.

The google scholar database is searched with the keywords “Digital Competence AND Self-

Efficacy” and “Digital Competence AND Psychological Wellbeing” and subject area “EDUCATION” are

considered. The total number of records retrieved is 39500. Then records are searched with time range from 2015-2025. Ten years’ time range is taken. 21700 records got excluded and 17800 are included. From the 17800 records, 17768 records are excluded on the criteria of specific to research area, title and abstract screening and 8 duplicate records and rest 32 records are included. Out of these 32 papers only 14 are selected for final review. The rest 18 papers are excluded on the criteria that only document type articles are considered and language barrier and not fully text articles are also excluded. The papers derived from searches in Scopus database and Google Scholar database are merged together. The total paper that came up for final review is  $(22+14) = 36$ . The flow diagram of the exclusion and inclusion criteria based on PRISMA are shown in Fig.-3.

### Criteria Selection for content analysis

The content analysis criterion must be determined to meet the research questions. The descriptive analysis can be carried out using a systematic evaluation process considering the selected articles. The evaluation process considered the various parameters such as, number of publications in a year ranging 2015 to 2025, analysis of publication based on journals, research technique employed, author keyword co-occurrence using VOS viewer software, Keywords occurrence and total link strength analysis using VOS viewer software, countries actively participate in this research domain.

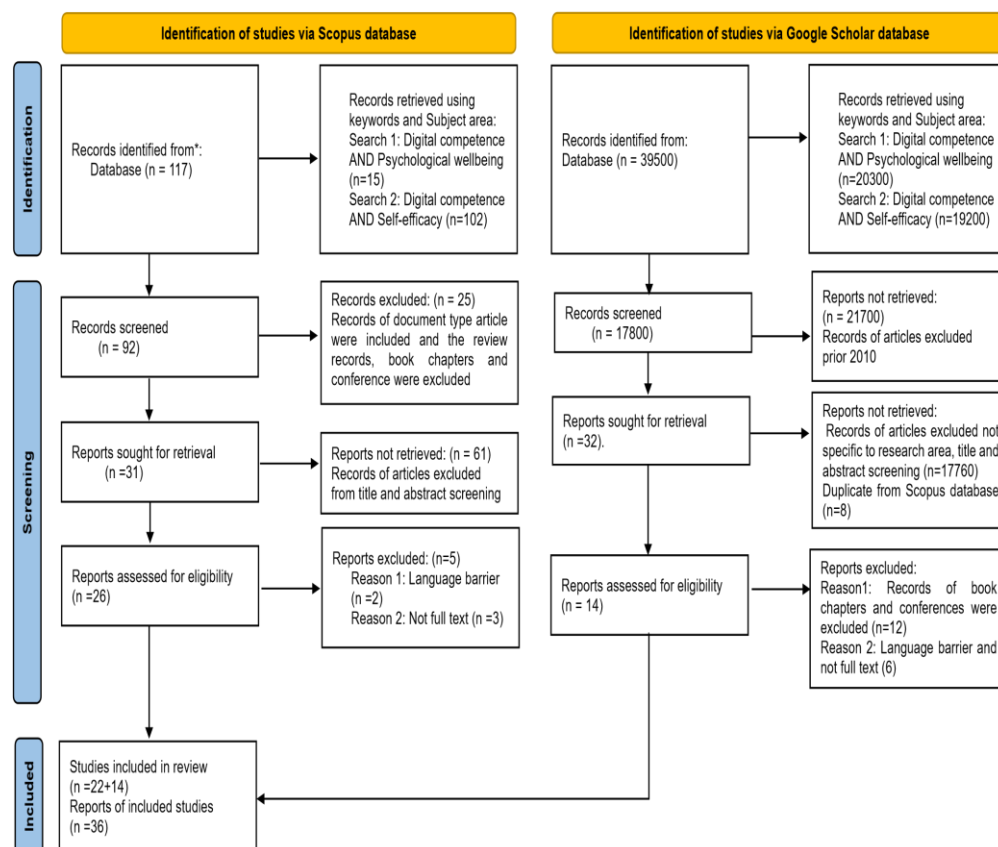
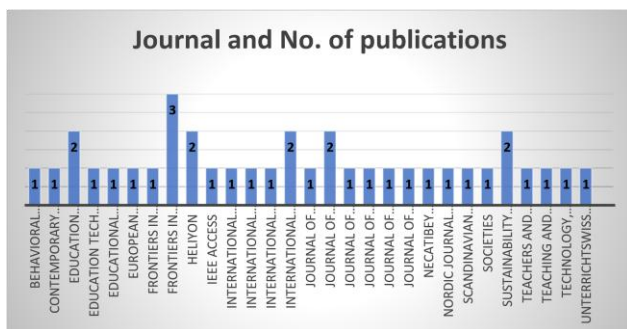


Figure 3: PRISMA Flow Diagram for the Systematic Literature Review

## Results

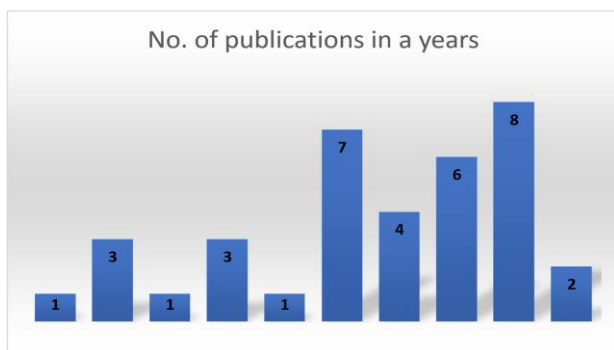
This section examines the evaluated papers from variety of perspectives. To summarize the result in each category, tables, figures and graphs were employed resulting in a simple presentation of the data.

**Graph 1:** Journals and number of publications



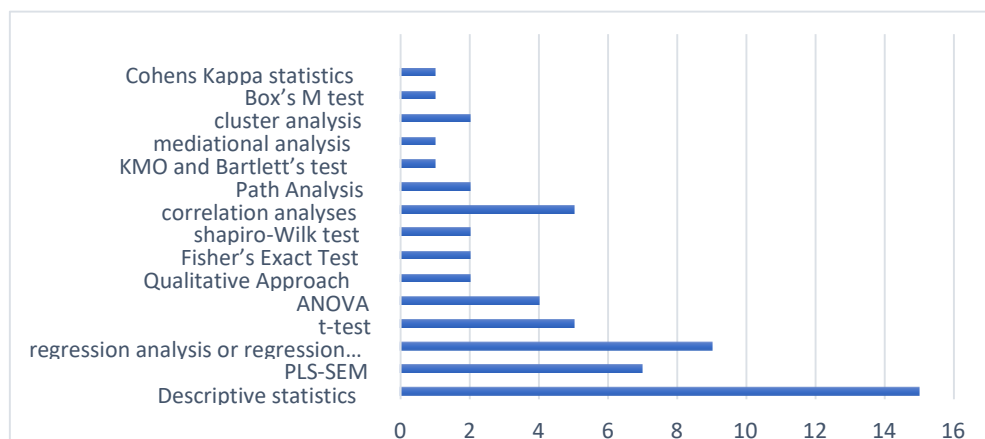
Graph 1, demonstrates that there were 36 journal articles on Digital Competence in education between 2015 and 2025 were analysed. Looking over the highest publications 3 articles were published at Frontiers in Psychology. Heliyon, Education Sciences, International Journal of Evaluation and Research in Education, Journal of Digital Learning in Teacher Education and Sustainability (Switzerland) each of them published 2 articles on this domain.

**Graph 2:** Publications data from Scopus and Google scholar database from 2015-2025



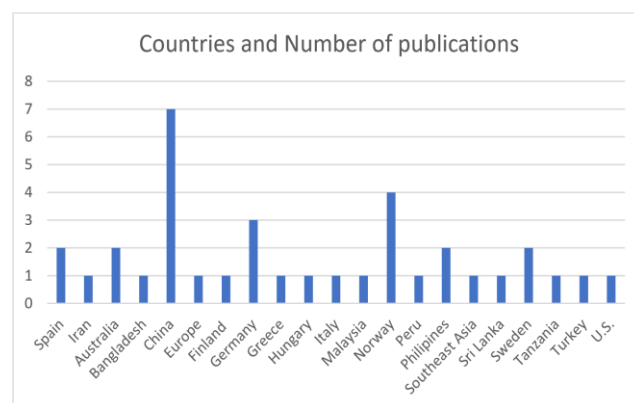
2015 2017 2018 2019 2020 2021 2022 2023 2024 2025

**Graph 4:** Statistical techniques and number of times applied in selected publications



Graph 2, demonstrates that there were 37 articles were published on Digital Competence in education between 2015 and 2025. Publication trends display a consistent up and little down pattern. The ascending pattern took place between 2021 and 2024. Looking over the period from 2015 to 2020 had the fewest articles that looked at teachers digital competence and 2024 saw the most.

**Graph 3:** Countries and number of publications



Graph 3, demonstrates that countries like China and Norway having maximum research work in the field of digital competence in education and Germany has 3 articles in this domain and rest of the countries in the graph shows minimum number of publications.



Graph 4, demonstrates that most of the articles applied descriptive statistics as shown in the graph counts 15. It also shows that regression, correlation and partial least square method has been applied which counts 9, 5 & 7 respectively. Various other techniques such as Cphens

Kappa statistics, t-test, ANOVA, Fisher's exact test etc. have also been applied to the selected articles.

**Table 1:** Focusing on factors influencing teachers digital competence.

| Cite                           | Journal   | Intrinsic Factor                    | Extrinsic Factor   | Respondent               | Gap   |
|--------------------------------|---|-------------------------------------|--|--------------------------|---|
| (DİKKARTIN ÖVEZ & DEMİR, 2023) | Necatibey Faculty of Education, Electronic Journal of Science and Mathematics Education | Teachers experience                 | Teacher's training   | Secondary school teacher | Lack of attitudes toward distance learning, need for targeted training and mindset shift. |
| (Ogodo et al., 2021)           | Journal of Higher Education Theory and Practice   | Teachers experience                 | Access to digital tools, technology training, institutional support. | K-12 teacher             | Inadequate support, technology availability, and lack of preparation                      |
| (Hinojo-Lucena et al., 2019)   | IEEE Access   | Previous online learning experience | Academic discipline, Internet usage frequency                        | Teacher                  | Lack of motivation and engagement in digital learning settings.                           |

|                                  |  |   |  |                        |   |
|----------------------------------|--|---|--|------------------------|---|
| (Falloon, 2020)                  | Education Tech Research Dev                | Digital SelfEfficacy                    | Academic Discipline  | Teacher                | Digital training in teacher education.  |
| (Elstad & Christopherse n, 2017) | Education Sciences                         | Attitudes Towards Digital Skills        | Students Technology Engagement, vicarious experience               | Pre-service teacher    | Lack of research on how mentor and teacher educator modelling support student teachers ICT use. |
| (Lemon & Garvis, 2016a)          | Teachers and Teaching: Theory and Practice | Beliefs and Attitudes Toward Technology | Technology Use, Collaboration and Support, Access to Digital Tools | Primary school teacher | Communication and collaboration, support and technology use.                                    |
| (Raphael & Mtebe, n.d.-b)        | Journal of learning for development        | Perceived Ease of Use                   | Support, Social Influence  | Pre-service teacher    | confidence and beliefs.   |

|                                       |                                       |  |   |                     |  |
|---------------------------------------|---------------------------------------|--|---|---------------------|--|
| (Kent & Giles, 2017)                  | Srate Journal                         | Technology selfefficacy, attitude toward technology, | Training and modelling, access to technology, vicarious experience. | Pre-service teacher | Further qualitative research is needed to explore influencing factors.   |
| (Galindo-Domínguez & Bezanilla, 2021) | Contemporary Educational Technology   | Academic selfefficacy & Stress                       | –   | Students            | Applying the model in varied contexts with larger samples across countries and including additional mediators such as liking for technology, selfregulation, emotional intelligence, life satisfaction, and procrastination. |
| (González-Prida et al., 2024)         | Societies                             | Academic SelfEfficacy                                | Communication & Collaboration, Digital Security                     | Students            |  |
| (Soheili et al., 2024)                | Journal of Knowledge-Research Studies | Internet SelfEfficacy                                | Professional Growth   | Teacher             | Need for studies exploring other   |

|                               |                                       |                   |                      |         |  |
|-------------------------------|---------------------------------------|-------------------|----------------------|---------|--|
|                               |                                       |                   |                      |         | psychological mediators.   |
| (Gudmundsdottir et al., 2018) | European Journal of Teacher Education | ICT self-efficacy | Quality ICT training | Teacher | Further research is needed on specific strategies to improve ICT selfefficacy, and how to manage classroom distractions in technology-rich environments. |

|                         |  |   |                                |                     |   |
|-------------------------|--|---|--------------------------------|---------------------|---|
| (Amhag et al., 2019b)   | Journal of Digital Learning in Teacher Education | Computer selfefficacy                           | Subject specific ICT training. | Teacher educators   | Significant gap exists in pedagogical training and understanding the value of digital tools in enhancing student learning.              |
| (Hatlevik, 2017)        | Scandinavian Journal of Educational Research     | ICT self-efficacy, teacher's ability to use ICT | –                              | School teacher      | Further research is needed using longitudinal design to understand how to strengthen teachers' digital skills and confidence over time. |
| (X. Wang et al., 2021a) | Frontiers in Psychology                          | Psychological wellbeing                         | Socioeconomic status (SES)     | University students | There is limited empirical data linking digital competence with burnout and engagement under SelfDetermination Theory.                  |

|                          |                                    |  |   |         |  |
|--------------------------|------------------------------------|--|---|---------|--|
| (Andreasen et al., 2022) | Nordic Journal of Digital Literacy | Technology pedagogical knowledge, confidence in use of ICT, ICT self-efficacy, perceived usefulness of ICT | – | Teacher | Need for more quantitative, longitudinal, and experimental studies on PSTs' PDC. Also, certain constructs like digital judgment and TE-PDC were measured with only one item, limiting depth. |
|--------------------------|------------------------------------|--|---|---------|--|

|                            |   |                          |   |                |  |
|----------------------------|---|--------------------------|---|----------------|--|
| (Z. Wang & Chu, 2023)      | Sustainability                              | Self-Efficacy            | Facilitating Conditions, Institutional Category | Teacher        | The reliance on self-perceived data, non-random sampling, and limited exploration of other influencing factors such as social influence and performance expectations suggest the need for broader, more objective future research. |
| (Gobbi et al., 2021)       | Sustainability                              | Teachers' selfefficacy   | Environmental situation (Cov-19)                | School teacher | The study emphasizes the need for training and goal-oriented support systems for online Physical Education teaching.   |
| (Gunathilaka et al., 2022) | International Journal of Educational Reform | Psychological well-being | Environmental situation (Cov-19)                | Teacher        | Research is needed to explore how these external factors and broader systemic support  |

|  |  |  |  |  |   |
|--|--|--|--|--|---|
|  |  |  |  |  | influence the effectiveness and sustainability of remote education. |
|--|--|--|--|--|---|



|                              |   |  |  |                     |   |
|------------------------------|---|--|--|---------------------|---|
| (Dai, 2023)                  | Heliyon   | ICT Self-efficacy  | Collegial Collaboration, Infrastructural Support | Pre-service teacher | <p>The study was limited to a single institution with a cross-sectional design and selfreported data.</p> <p>It lacked real-life teaching contexts, which may limit generalizability. A Longitudinal studies and more diverse samples are needed.</p> |
| (Hanifah et al., 2023)       | International Journal of Evaluation and Research in Education | Technology selfefficacy, Attitude towards digital technology.  | —  | Teacher             | <p>Various training programs have been introduced, they are insufficient.</p> <p>Future training must be more structured, practical, and easy to understand</p> <p>to enhance digital competence, confidence, and motivation among teachers.</p>      |
| (Nagy & DringóHorváth, 2024) | Education Sciences  | Teacher's ability to use ICT, ICT Self-efficacy, Technostress. | Collegial Support, Institutional Support         | University teacher  | <p>Prior research lacked an integrated model combining intrinsic, beliefbased, and environmental factors in higher education.</p>   |

|                           |   |   |   |                                   |   |
|---------------------------|---|---|---|-----------------------------------|---|
| (Hoss et al., 2022)       | Frontiers in Psychology   | General selfefficacy  | Past learning opportunities, working environment. | University student                | The study highlighted a lack of sufficient formal digital literacy training before the pandemic.<br><br>The paper suggests more targeted educational interventions are needed to support digital competence across disciplines and student emotional wellbeing during crises. |
| (Bartkowiak et al., 2022) | International Journal of Environmental Research and Public Health | Psychological wellbeing                                     | Quality of professional life                      | Teacher                           | There's a need for larger, quantitative studies to explore the long-term impact of remote teaching on productivity and mental health, especially across different age groups and academic disciplines.  |
| (Bertram et al., 2023)    | Unterrichtswissenschaft   | Technological-Pedagogical Knowledge, Selfefficacy, beliefs. | —   | Pre-service and inservice teacher | Need for further research with better-targeted participants and longer interventions.   |
| (Kruskopf et al., 2024)   | Teaching and Teacher Education                                    | Experience, selfefficacy                                    | —   | Pre-service teachers              | There is limited understanding of how nuanced curricular differences in ICT affect self-efficacy, and how gender  |

|                          |   |                         |                            |                       |   |
|--------------------------|---|-------------------------|----------------------------|-----------------------|---|
|                          |   |                         |                            |                       | and prior learning interact with these.<br>Tailored teacher education interventions are needed to bridge these gaps.  |
| (Hortelano et al., 2021) | International Journal of Evaluation and Research in Education (IJERE) | Self-efficacy.          | –                          | Teachers and students | Limited attention to how contextual and demographic factors moderate ICT integration.   |
| (Hossain et al., 2023)   | Frontiers in Education  | Computer selfefficacy   | Socioeconomic status (SES) | University students   | Further study to use non-probability sampling approach and also need more empirical research, both qualitative and quantitative from primary, secondary and tertiary level of education to generalise and find out determinants of digital competence among students. |
| (Peng et al., 2024)      | Heliyon   | Attitudes, Selfefficacy | –                          | Teachers              | Limited prior studies within the educational context using PLS-SEM to explore these relationships. Few studies addressed the combined and mediated effects of these variables with age and gender moderation.   |
| (Huong et al., 2025a)    | Educational Process: International Journal                            | Perceived confidence    | –                          | Primary school        | Insufficient exploration of how professional  |

|                      |                                    |  |   |                     |   |
|----------------------|------------------------------------|--|---|---------------------|---|
|                      |                                    |  |   | teacher educator    | development (PD) can address gendered and contextual needs. Little research on AI-related competence in primary education.  |
| (Funke et al., 2025) | Technology, Knowledge and Learning | Belief on intention to use subject specific digital tools. | – | Pre-service teacher | Earlier studies did not focus on preservice teachers' beliefs about using different digital tools in specific subjects like biology. Most research looked at general beliefs, not toolspecific or subjectspecific ones. |
| (Shi et al., 2025)   | Behavioral Sciences                | Teacher psychological resilience, teacher self-efficacy    | – | Teacher             | Previous studies focused on learners, not teachers, in online contexts. Little was known about how TPR and TDC interact to influence TSEF.  |

|                   |  |                                  |                               |          |   |
|-------------------|--|----------------------------------|-------------------------------|----------|---|
| (Cabaron, 2024)   | International Journal of Advanced and Applied Sciences | Self-efficacy                    | communication & collaboration | Teacher  | Limited research exploring the direct impact of self-efficacy on digital competence acquisition. Need for studies using regression and qualitative methods to explore |
|                   |  |                                  |                               |          | perceptions and predictors.   |
| (Moorhouse, 2023) | ELT Journal  | Perceived technology use         | –                             | Teachers | Most prior research focused on secondary/tertiary levels.<br><br>There is a lack of understanding of primary-school teachers' digital technology practices.           |
| (Katsarou, 2021)  | Journal of Education and e-Learning Research           | Computer anxiety, self-efficacy. | –                             | Students | There is a lack of qualitative insights into how anxiety and self-efficacy actually impact learning behaviour in real classroom settings.                             |

Table 1 presents the review table for the eligible articles. All eligible articles were reviewed and analyzed based on the inclusion criteria and journal, factors influencing, respondents and gap of the article paper. The review outcomes were tabulated in Table 1 with the research gap, journal and factors influencing teachers digital competence from all eligible articles. The factors are

divided into two groups intrinsic and extrinsic factors. The intrinsic factors are inherent qualities such as, self-efficacy, perceived usefulness, belief, attitude etc., on the other hand extrinsic factors are external influences such as, availability of technology. Institutional support and communication and collaboration etc., all these factors directly or indirectly influence individuals perception towards technology use in classroom.

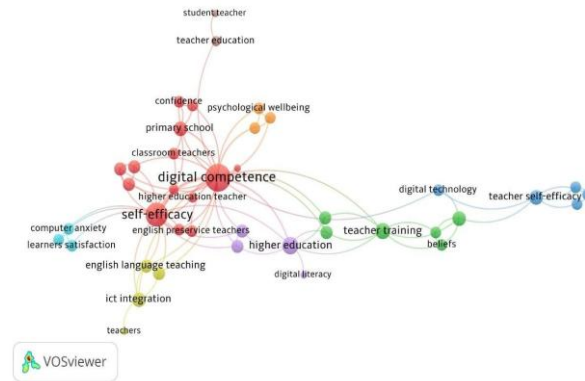
**Table 2.** Cluster details of the occurrence of the keyword.

| Cluster 1 (14 items)         | Cluster 2 (6 items)    | Cluster 3 (5 items)               | Cluster 4 (4 item)        | Cluster 5 (4 item)            | Cluster 6 (3 item)          | Cluster 7 (3 item)      | Cluster 8 (2 item) |
|------------------------------|------------------------|-----------------------------------|---------------------------|-------------------------------|-----------------------------|-------------------------|--------------------|
| Classroom Teachers           | Beliefs                | Digital Technology                | English Language Teaching | Collegial Support             | Computer Anxiety            | Psychological Wellbeing | Student Teachers   |
| Collegial Collaboration      | Biology-Specific Media | Online TCFL Teachers              | ICT Integration           | Digital Literacy              | Digital Literacy Competence | Socioeconomic Status    | Teacher Education  |
| Confidence                   | Computer SelfEfficacy  | Teachers Digital Competence       | In-Service Teachers       | Higher Education Technostress | Learners Satisfaction       | University Students     |                    |
| Digital Competence           | PreService Teachers    | Teachers Psychological Resilience | Teachers                  |                               |                             |                         |                    |
| English Pre-Service Teachers | Teachers' Educators    | Teacher SelfEfficacy              |                           |                               |                             |                         |                    |
| Higher Education Teachers    | Teacher Training       |                                   |                           |                               |                             |                         |                    |
| ICT Competence               |                        |                                   |                           |                               |                             |                         |                    |
| Primary School Self-Efficacy |                        |                                   |                           |                               |                             |                         |                    |
| Senior High School           |                        |                                   |                           |                               |                             |                         |                    |
| Teacher Educators            |                        |                                   |                           |                               |                             |                         |                    |
| Teacher Student              |                        |                                   |                           |                               |                             |                         |                    |
| Teachers' Self-Efficacy      |                        |                                   |                           |                               |                             |                         |                    |
| Teaching                     |                        |                                   |                           |                               |                             |                         |                    |



|               |  |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|--|
| Self-Efficacy |  |  |  |  |  |  |  |
|---------------|--|--|--|--|--|--|--|

There are 8 clusters from the selected 41 keywords arranged in a descending order from cluster 1 to 8. Items in cluster 1 having dense research work publication as compared to cluster 2 to 8. Items in cluster 2 having dense research work publication as compared to cluster 3 to 8 but less than cluster 1 and so on.



**Figure 2:** (A,B) shows the network of the keywords

**Figure 2A:** shows the network of Author's keywords in Digital competence, (A) Keyword cooccurrence.

A total of 121 keywords were found, among those keywords 41 item were selected to analyze. The node's size reveals how often it occurs. Co-occurrence between nodes is represented by curves. From the network visualisation it shows nodes of Digital competence is much larger among all others and self-efficacy is next term after digital competence are selected in much of the publications. And their closeness between the nodes demonstrates relative strength and topic similarity, much of the publication focuses on these two terms. On the other hand, small nodes such as psychological wellbeing, higher education, teacher self-efficacy, belief , confidence etc. are less selected in this domain of study. As shown in the figure, these small nodes are little distant from digital competence node which demonstrates rarely selected and discussed together in a publication i.e., weaker relative strength.

**Table 3: Focuses on Keyword occurrences with total link strength**

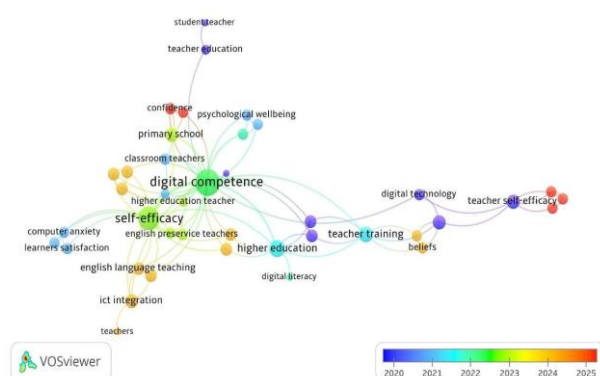
| Sl no. | Term                 | Occurence | Total Link Strength |
|--------|----------------------|-----------|---------------------|
| 1      | Digital Competence   | 15        | 70                  |
| 2      | Self-Efficacy        | 9         | 47                  |
| 3      | Higher Education     | 3         | 16                  |
| 4      | Teacher Training     | 2         | 10                  |
| 5      | Pre-service teachers | 2         | 7                   |

|    |                                  |   |   |
|----|----------------------------------|---|---|
| 6  | Teacher self-efficacy            | 2 | 6 |
| 7  | Mental wellbeing                 | 1 | 6 |
| 8  | In-service teachers              | 1 | 5 |
| 9  | Teacher educators                | 1 | 5 |
| 10 | Higher Education Teachers        | 1 | 4 |
| 11 | Confidence                       | 1 | 4 |
| 12 | Psychological wellbeing          | 1 | 4 |
| 13 | Teacher Digital Competence       | 1 | 4 |
| 14 | Teacher Psychological Resilience | 1 | 4 |

The occurrences are the number of times the keywords are selected for the research work. The sum of the strength of all links connecting a specific keyword to other keywords. From the table, highest occurrence is Digital Competence and next is Self-Efficacy 15 and 9 respectively. Teacher training and higher education also having stronger interconnectedness with digital competence and higher education. But digital competence with in-service teachers, mental wellbeing, psychological wellbeing, teacher psychological resilience and confidence having

weaker interconnectedness which needs to focus on further studies.

**Figure 2(B):** Keyword Co-occurrence time ranging from 2015-2025.



The color were used to represent the time-varying keyword occurrences from 2015 (in dark blue) to 2025 (in red) i.e., blue colored nodes are older publications and red colored nodes are latest publications.

## 2. DISCUSSION

The research delved into 36 journal article papers from Scopus and Google scholar database that were published from 2015-2025. Every article has been evaluated for strength and weaknesses through different lenses. Therefore, we provide a comprehensive review of the various factors effecting in teacher's digital competence in pedagogical practices with the help of a systematic literature review (SLR) and bibliometric analysis. The articles were evaluated through various analysis such as, number of relevant articles published in journal, articles published in a year from 2015-2025, countries contributed in this research domain, applies statistical techniques and bibliometric analysis of co-occurrence keywords etc. Exclusion and inclusion criteria help us narrow down the articles, while finding from these selected journal articles help pinpoint areas where as research is lacking as well as future directions. An evaluation of the research scenario in teachers digital competence (TDC) reveals that most studies use quantitative research method and only one paper is qualitative approach. This includes approaches such as regression analysis, correlation analysis, ANOVA, t-test and partial east square analysis etc. From the bibliometric analysis, table of cluster shows that the existing works carry out various types of research within different vast numbers of topic, which are interconnected such as, confident, belief, psychological wellbeing, teacher's psychological resilience, teacher self-efficacy, mental wellbeing, satisfaction that can affect individual's personal and professional activities negatively. Moreover, much of the existing literature provides overview on teacher's training and practice of using digital tools in classroom which are basically extrinsic factors but less studies focuses on teacher's mental and emotional state, motivation, psychological conditions and academic burnout which are intrinsic factors. Therefore, the present review aids policymakers in developing effective strategies and practices for the teachers as well as for the organizations to make teachers mentally stable and

healthy in the workplace so that they can build their self-confidence and contribute significantly by learning and implementing digital tools during teaching. From table 1, It boosts digital-based pedagogical practices within the educational institutions. The study indicates most of the higher education teachers reported need of extensive ICT training in incorporating subject specific technological based pedagogical practices. Lack of confidence in using computer are found within teachers. Teacher educators felt confident in their existing knowledge to share but struggle to integrate technological based teaching. The study finds that teacher and teacher educators should be motivated in using digital tools for teaching purpose. Paid and compensation-based training program should be conducted featuring subject specific training and digital media use by experienced professionals for building self-confidence and psychological resilience to better performance in teaching practice. The study finds that teacher facing challenges in maintaining motivation and workload. The heavy workload, unclear guidelines, time-management difficulties, and lack of institutional support undermined teachers' motivation and widened psychological strain, despite their resilience and commitment. It also highlights urgent need for targeted digital-literacy training and professional development of teachers, alongside infrastructure investments, mental-health support, and well-designed learning models to safeguard both educators well-being and educational quality in digital and remote learning contexts. The study also finds that Teacher Psychological resilience (TPR) significantly contributes to self-efficacy, highlighting the importance of emotional support and coping strategies. Institutions should integrate psychological counselling and resilience to help teachers manage their stress and mental load of online teaching and thereby strengthen their self-efficacy. All these findings similar to the previous studies (Shi et al., 2025; Z. Wang & Chu, 2023; Bartkowiak et al., 2022; Elstad & Christophersen, 2017). The study revealed that digital literacy supports remote teaching, it also negatively impacts psychological well-being when stress and depression mediates the relationship. The study also finds that teachers' self-efficacy was described as unstable because it is mediated by many personal and contextual factors. Thus, policymakers and institutions should invest in professional development that boosts self-efficacy. In the present study found that researchers mainly focus on teachers training and strategies to implementing technology in classroom but lack in focusing on teacher's self-motivation, confidence, mental health, psychological conditions, emotional state, self-satisfaction all these are the intrinsic factors which can enhance digital competence in teachers. Teachers and teacher educators with completed training programs fails to integrate digital media in the classroom because of amotivation, low self-confidence and psychological conditions and further study should be done in focus of these internal factors.

## 3. CONCLUSIONS

The conclusion obtained in this paper in relation to the proposed objectives is set. Digital Competence research exploded in popularity from the last few years. Conducting a systematic literature evaluation of 36

journal articles published on last fifteen years. Exclusion and inclusion of journal articles through PRISMA framework were considered. Few amount of research is being conducted to Teachers Digital Competence, there are some possible research gaps that need to bridge the gap such as, to measure the impact of psychological wellbeing and self-efficacy of teachers in enhancing their digital competence and similarly there are other internal factors also which contribute to digital competence such as, emotional state, mental wellbeing, satisfaction and belief. The present study indicated higher self-efficacy leads to higher digital competence. Teachers self-efficacy

can negatively impact if mediated by negative psychological wellbeing, so policy makers and institutions should make policies in such a way that teachers will be psychologically resilience. Incentive-based training program should be conducted to make teachers motivated in taking technology integration based training to perform better in classroom teaching. The current thorough study thus provides a good insight of teachers self-efficacy and psychological wellbeing be the important factor to enhance digital competence in Higher Education Teachers (HETs)..

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