A bibliographic review of work-integrated learning research

KRISTINA ARESKOUG JOSEFSSON[1]
University West, Trollhättan, Sweden
Oslo Metropolitan University, Oslo, Norway
ELISABETH NÄVERÅ
ANNA WILNER
University West, Trollhättan, Sweden
DANIEL MASTERSON
University of Skövde, Skövde, Sweden

The need to uncover the bibliographic field of work-integrated learning (WIL) stems from the increased interest to include WIL in higher education and present positive outcomes of WIL. This bibliographic review of WIL aims to understand the connectedness and trajectory of WIL in scientific publications and to explore the most influential actors. The amount of WIL research is increasing rapidly and there is global interest in the research field, even if there are dominating countries, such as Australia. From both citations, co-citations, and bibliographic coupling it is evident that there are highly influential countries, sources, publications, and authors in WIL research, which shape the bibliographic landscape of WIL. As WIL is an emerging research field, additional bibliographic reviews in coming years can show future trends in WIL research and potential differences between countries and disciplines.

Keywords**:** Bibliographic visualization, bibliographic network, VOSviewer, work-integrated learning

The need to uncover the bibliographic field of work-integrated learning (WIL) stems from the increased interest to include WIL in higher education and present positive outcomes of WIL. WIL can be seen as an umbrella term covering a wide range of approaches and strategies that purposefully integrate theory with practice, either as workplace-based or not workplace-based WIL (Ferns et al., 2014; Vu et al., 2022). According to literature there are several benefits of WIL, such as enhancing employability and obtaining real world skills, as well as improving analytical skills, maturity, emotional intelligence, teambuilding, negotiation, communication, and interpersonal skills (Jackson & Dean, 2023; Pham et al., 2018). However, the question of how WIL is defined, assessed, and understood in different settings and countries remains. The different understandings and applications of WIL are likely to influence how WIL is presented in publications, which publications are being cited and how these publications are connected. A deeper understanding of the bibliographic landscape of WIL research can provide new researchers and students additional knowledge of influential countries, sources, authors, and papers in WIL research. In addition, this knowledge can also provide a view of current trends in WIL research and relevant sources of where to publish WIL research.

Bibliographic reviews are particularly useful to describe and provide a deeper understanding of the structure and development of a research field as they can identify paradigm shifts, topic clusters, author networks, literature gaps, and academic silos (Block & Fisch, 2020; Hallinger & Kovačević, 2023). Deepened bibliographic knowledge of the WIL research field can point researchers in the direction of the most influential sources, authors, and publications. Therefore, this bibliographic review intends to map publications of WIL and how they are interconnected, in order to provide a map of the present bibliographic landscape of WIL.

[1] Corresponding author: Kristina Areskoug Josefsson, Kristina.areskoug-josefsson@hv.se

The Diversity of Work-Integrated Learning

WIL is a progressive and expanding research field (Fleming & Zegwaard, 2018). The WIL definition by Zegwaard et al. (2023, pp. 19-38) was used as a base for the study, however WIL can also be seen as an educational philosophy, a pedagogy, and a research topic grounded in learning theory and learning in and with a workplace setting (Sunnemark et al., 2023). There are various versions and descriptions of WIL in different educational contexts and countries, including a range of learning-practice integration, intending to supply authentic instances of practice integrated into higher education (Billett, 2009; Ferns et al., 2014). How to do WIL, can be seen as ranging from high to low levels of engagement and authenticity at workplaces (Ferns et al., 2014) and intends to encourage the practice of applying and transferring theoretical skills and knowledge in a real-world setting (Jackson, 2015). To transfer theoretical knowledge to real-work situations is complex within educational structures and WIL can support this transfer (Berndtsson et al., 2020).

As WIL is not new, different types of WIL models have been used. Starting with the apprentice model, further developing to a more technocratic model and then, the post-technocratic model (Pham et al., 2018). The apprentice model was based on the view that theoretical frameworks were the universities´ responsibility, while training in theoretical skills was the responsibility of the workplace. The model was developed further into a technocratic model which had a stronger focus on the combination of supervision in the workplace of application of theoretical knowledge in a strong partnership with workplaces (Pham et al., 2018). The key features of a further developed post-technocratic model are to teach critical and reflective skills, which can be used to develop practices to respond to constant changes in the workplace (Pham et al., 2018). WIL at universities today shows traces of the three models (Pham et al., 2018). However, the type, length, and scope of WIL-activities vary, and the integration of such activities in university programs. WIL can also be described as a transition, where the students go from study to work (Vu et al., 2022). There are also approaches for WIL, such as systematic training, structured work experience, and institutional partnerships (Sattler, 2011). Considering the presented variety within WIL, it is relevant to explore how the concept of WIL is used in scientific publications.

Value of a Bibliographic Review of Work-Integrated Learning

A bibliographic review can broaden the understanding of WIL and its presentation in scientific publications, as it describes the publishing trends and the current bibliographic landscape of WIL. Bibliographic evaluation and exploration of relations between metadata can provide a rich picture of how WIL is presented in published literature, uncover networks of importance, and identify areas where WIL is absent. WIL research is being published both in WIL journals and other more diverse contexts (Fleming & Zegwaard, 2018). The basis of bibliometrics is the assumption that the scholarly output from a field is captured in the published literature, where the trajectory of a topic can be explored (Ninkov et al., 2021). In bibliographic reviews, bibliographic coupling, co-citation and citation can show links between publications, and both bibliographic coupling and co-citation can provide meaningful and cohesive clusters (Nguyen Quang et al., 2019). Bibliographic coupling, like co-citation, is a method of assessing similarity between documents using citation analysis. This occurs when two works both reference the same third work in their bibliographies, suggesting a likelihood that they address related subject matter (Kessler, 1963). Bibliographic coupling encompasses publications that share a common reference in their respective reference list, while co-citation covers publications that are both located on a common reference list on a third publication (Nguyen Quang et al., 2019). These bibliographic connections and clusters can provide information regarding a theme, such as in this case WIL in research publications. Direct citations are used less in bibliographic reviews as they often provide very sparse networks (Van Eck & Waltman, 2014). Link strength between countries, publications and authors provides additional information of influence in the research field.

OBJECTIVE

This bibliographic review aims to map the scientific landscape of WIL research worldwide. The review combines evaluative and relational bibliometrics (Ninkov et al., 2021) and network analysis techniques. The paper describes the status of research on WIL through data such as the evolution of publications over time, identification of main journals, important authors and publications, and most scientifically productive countries. It also explores the global network of WIL, identifying important authors and subthemes on this topic and how they intertwine.

From this set of findings, another broader objective is to generate evidence that can inform and contribute to managers, researchers, and policy makers in decision-making for research planning and development of strategies on WIL in different contexts.

Review Questions

This bibliographic review of WIL aims to understand the connectedness and trajectory of WIL in scientific publications through the following research questions:

- Where, when, and by whom are WIL publications published?
  How are these WIL publications interconnected?
- Which are the most influential actors of WIL publications?
  How are influential WIL publications interconnected?

METHOD

As there is limited guidance to bibliographic reviews (Block & Fisch, 2020), this review protocol has been informed by the Johanna Briggs Institute manual for evidence synthesis (Aromataris & Munn, 2020). The review protocol was registered at the Open Science Framework 21st August 2023 (https://osf.io/hrcsf). The review applied the PCC (population, concept, context) framework recommended for scoping reviews to define the eligibility of the research questions (Peters et al., 2015) (Table 1). The review followed the methodological framework established by Arksey and O'Malley (2005) and revised by Levac et al. (2010) to allow for broad exploration of WIL. In line with guidance (Arksey & O'Malley, 2005; Peters et al., 2015), the review process featured five key stages: (1) identifying the research questions; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting results.

TABLE 1: Population concept context framework.

Criteria	Determinants
Population	Adult population though selection not based on a specific population (e.g., geographic area)
Concept	Studies including WIL & WIE in their article, title, abstract or keywords, regardless of language, global.
Context	Learning and education, though selection not based on a specific context (e.g., scientific discipline)

Inclusion criteria: Publications including WIL in their article, title, abstract or keywords, regardless of language, global, that are published in peer review journals.

There was no limitation on scientific disciplines, language, or publication date. Sources of unpublished studies/grey literature were excluded since the objective of this bibliographic review was to explore published research.

Search Strategy

During the pilot phase conducted in June 2023, searches within review registration repositories (PROSPERO and Open Science Framework) did not find any relevant protocols. As WIL research covers several disciplines, searches with the Cochrane Database of Systematic Reviews and JBI Evidence Synthesis were conducted and no current or underway bibliographic reviews on the topic were identified.

The search terms were chosen following a pilot search using Scopus, the results of which were reviewed and discussed. The terms tested were WIL, WIE (Work-integrated education), and WBL (Work-based learning). The latter identified results regarding work placement but not specifically related to WIL. WIE identified a limited number of publications, but preliminary exploration identified that this may be relevant to WIL and so was included in the search strategy. The chosen search terms used in our search strategy were: {work-integrated learning} OR {work integrated learning} OR {work-integrated education} OR {work integrated education}. The search was conducted in the SCOPUS bibliographic database and the search was performed in "All fields." The Scopus database was chosen on advice from a librarian with a specialism in WIL and recommendations for bibliographic studies (Block & Fisch, 2020). Scopus covers peer-review journals, trade journals, books series, books, book chapters, conference papers, articles in press, data papers and editorials which in this paper will be referred to as "publications." Scopus provides broad coverage along with compatibility with the bibliographic online tool VOSviewer. As the quality of metadata is essential in a bibliographical review, Scopus was also recommended from this perspective. To ensure an inclusive approach, no restrictions have been imposed on the type of document, areas of interest, period of publication, or country. All publication languages were accepted though it is noted that the search terms were written in the English language. VOSviewer has been used in previous research that also describes in more detail how the data transformation from a database to VOSviewer is performed (Kirby, 2023).

The search strategy aimed to locate publications in peer review journals but considered all published research literature, including theoretical and conceptual papers, studies with qualitative, quantitative, or mixed-method designs, and other types of articles e.g., reflective, opinions, editorials, or perspectives. This is not an exhaustive list, and an inclusive approach was adopted.

The search strategy was iteratively developed with experienced librarians and experts within the field with repeated pilot searches.

Source of Evidence Selection

Following the search in Scopus, the references for all results including citations were saved into a bibliographic data file (CSV) file. Duplicates were identified using conditional formatting and formulas in Microsoft Excel. Twenty-three duplicates and three notices of retraction were identified but removal did not affect the findings and so the original Scopus database was analyzed.

The analysis was performed on the metadata from the included publications using VOSviewer. The metadata extracted included specific details of authors, countries, connected subthemes (from keywords), journal, publication year, and language. Full-text analysis was not performed at this stage as the presence of publication was in focus, and not the content of the full text.

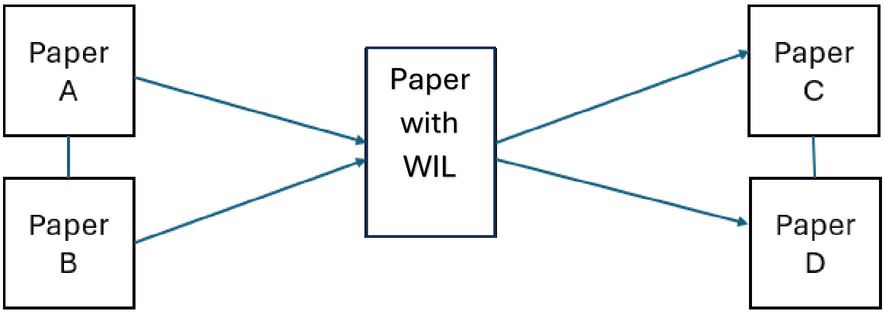
Data Extraction and Critical Appraisal

The bibliographic analyses were performed with VOSviewer and cluster analysis of the data. Citation network analysis (Colicchia & Strozzi, 2012) was undertaken to identify clusters. Cleaning of data by use of thesaurus in VOSviewer was made for countries and sources. VOSviewer uses the term "documents" for "publications," however, the term publications will be used throughout this paper. Considering the number of authors and publications a check of potential duplicates was made and as this was considered to be negligible, therefore additional cleaning of data was not done. Quality appraisal of the included publications was not performed due to metadata being the focus of this bibliographic review.

Data Analysis and Presentation

The characteristics of each source of data and the answers to the research questions are presented graphically where possible. A narrative summary further describes the results related to the research questions. In VOSviewer "full counting" has been used throughout and there has been no limitation regarding number of authors to a publication. Connections between WIL publications can be through co-citation, bibliographic coupling, and citations. Both bibliographic coupling and co-citation present valuable insights, as they explore linkage within the research field. However, bibliographic coupling can capture early stages of the evolution of the research field (Jarneving, 2007).

FIGURE 1: Co-citation, bibliographic coupling, and citation of WIL publications.



Note. Adapted from "New Framework for Automated Article Selection Applied to a Literature Review of Enhanced Biological Phosphorus Removal" by M. Nguyen Quang, T. Rogers, J. Hofman, and A. B. Lanham, 2019, *PLoS ONE*, *14*(5), Article e0216126 (https://doi.org/https://doi.org/10.1371/journal.pone.0216126). CC BY 4.0.

In Figure 1, Paper A & B are both cited in the refence list of Paper WIL and are thus co-cited. Paper C & D cite a common reference (Paper with WIL) and are thus bibliographically coupled. There are also direct links between two papers if one paper cites the other paper (citation). Paper A, B, C & D can be papers not found in the search of WIL papers. Total link strength indicates the number of links of an item with other items and the total strength of the links of an item with other items (Van Eck & Waltman, 2022). In VOSviewer visualizations a larger item size means higher significance of the item.

In VOSviewer, visualizations with thicker lines between co-cited publications represent a larger number of papers where the references have been cited together in the same articles. For bibliographic coupling, thicker lines represent a larger number of shared references in the respective publication. For citations visualizations are based on number of citations and do not present connections between publications. In the presentation of results "influential" means producing a high number of publications, being highly cited, co-cited or bibliographically coupled.

As the search has been performed in Scopus, items or citations not being covered in this database are not included in the results. The focus of this bibliographic review is on publications which are "paper with WIL" (Figure 1), therefore presented bibliometrics are from this sample, meaning that sources, authors, and publications can have additional citations when exploring them outside of this focused area of WIL research.

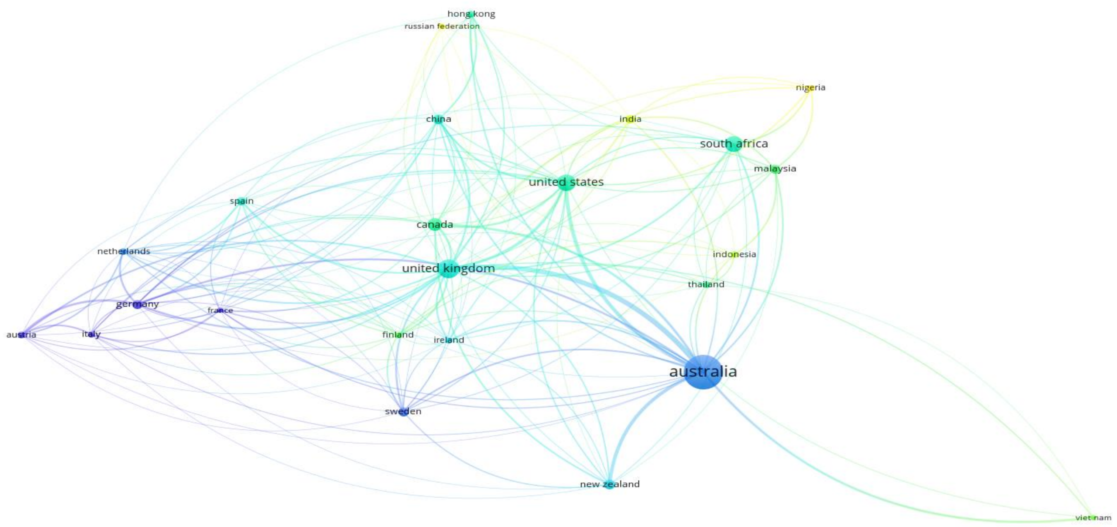
RESULTS

A pilot search was performed in June 2023. All researchers were present and worked together on an additional pilot search on the 20th of October 2023. The final search on the 2nd of November 2023 was performed and led to 5,323 publications. As the WIE publications were limited, they are included with the WIL publications. The results are presented in the order of the research questions. The first publication was from 2000 with the amount of WIL literature steadily increasing to 5,323 publications in November 2023.

Influential Countries

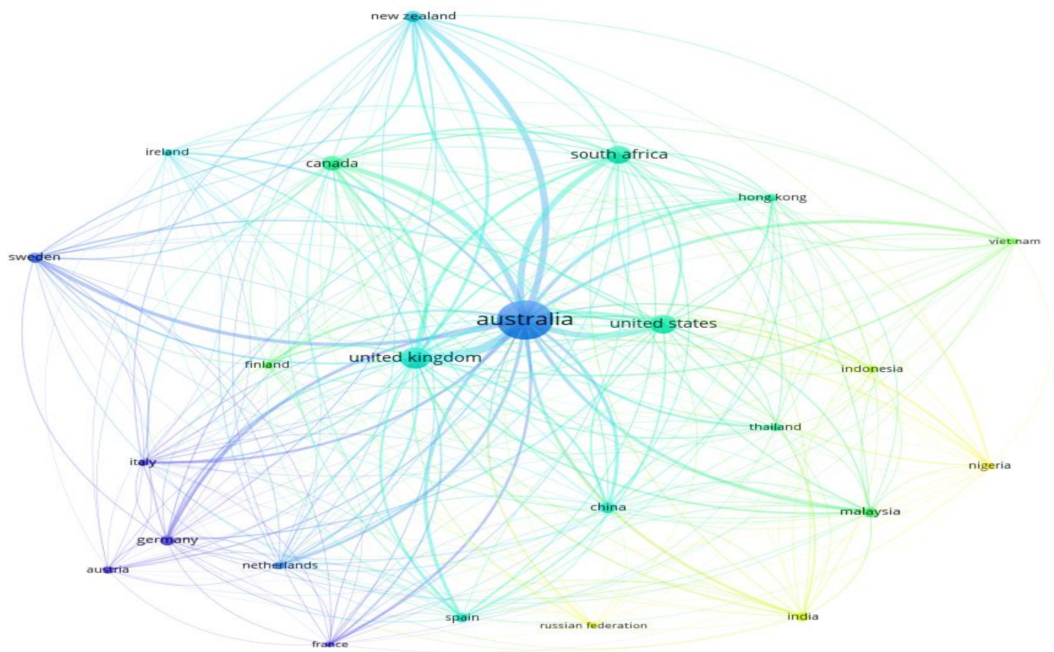
Most publications come from Australia (1,959 publications, followed by UK (558 publications), United States (438 publications), and South Africa (418 publications). There are publications from all continents, but several countries have only a few publications. There were 23 publications where a country was not found in the metadata. English is by far the most common language, but there are publications in other languages as well; Spanish (24), Russian (16 publications) and additional 9 languages with less than 10 publications. There are 24 countries linked with co-authorship indicating international cooperation in the field of WIL (Figure 2).

FIGURE 2: Co-authorship linkage for countries with minimum 50 publications and one citation.



Bibliographic coupling analysis show that there are 24 countries with 50 or more publications and at least one citation (Figure 3). The bibliographic coupling of countries shows the influence of Australia in WIL research. The closeness and the ticker line between Australia and the UK show that they have a larger number of shared references in their publications within WIL research.

FIGURE 3: Bibliographic coupling of countries with minimum of 50 publications and one citation.



Influential Authors

When looking at co-authorship for authors with more than ten documents, there are 45 authors, and 26 of those authors are related (Figure 4). Denise Jackson is the most influential author regarding citations and total link strength within the explored sample of WIL research (Figure 5 and Table 2).

FIGURE 4: Exploration of co-authorship of authors with at least 10 publications.

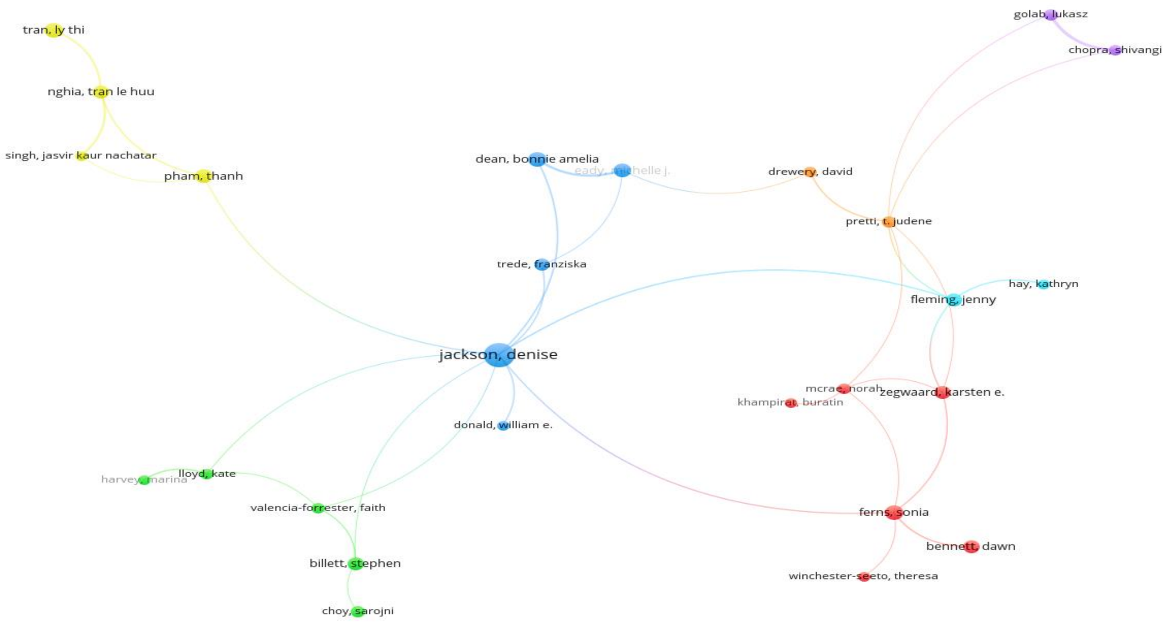


FIGURE 5: Linkage of authors with at least one publication and a minimum of 350 citations (number of citations from all publications from this author in this sample of WIL research).

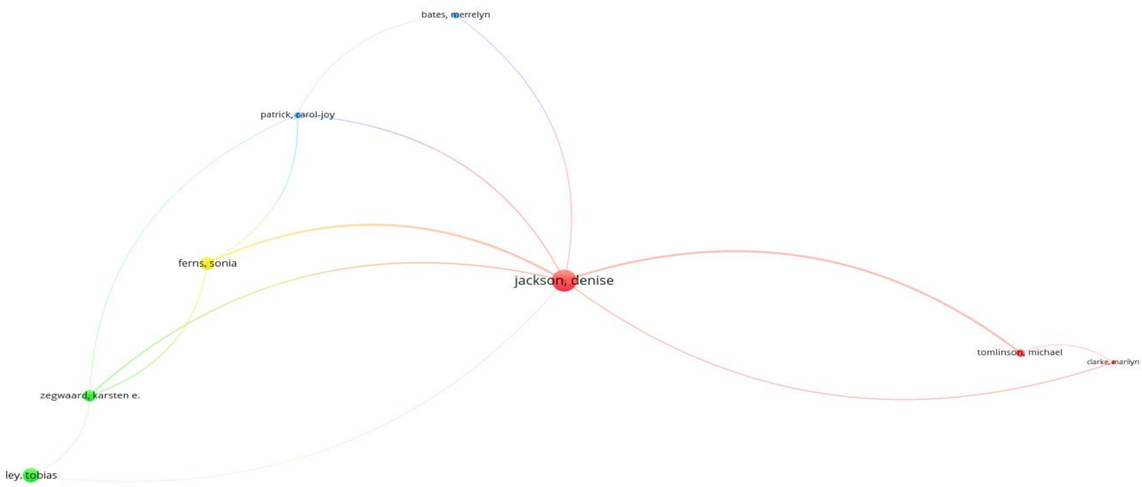
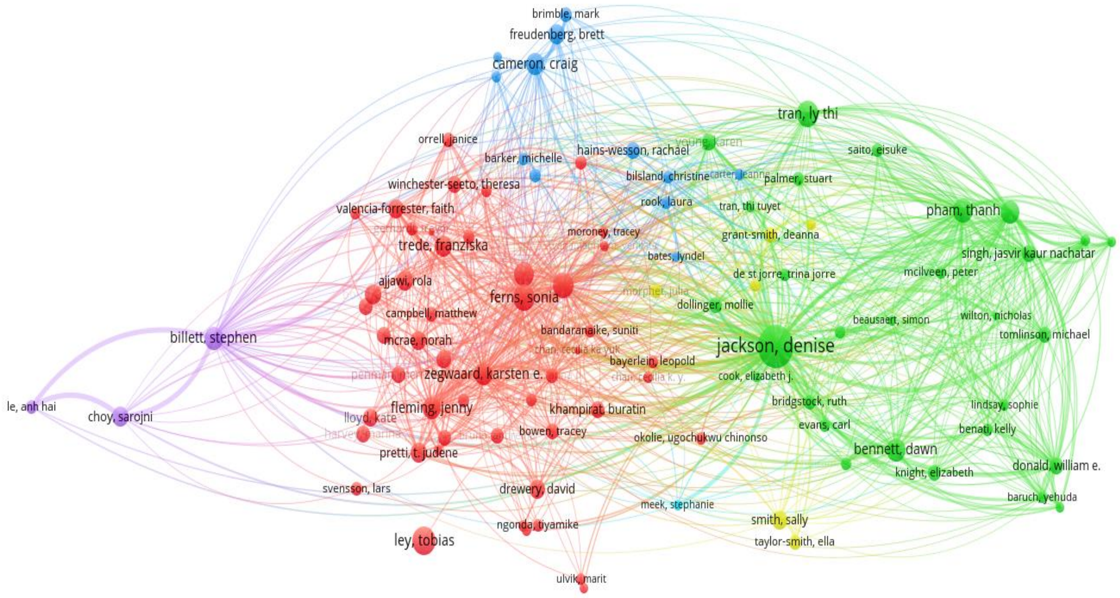


TABLE 2: Link strength of authors with at least one publication and a minimum of 350 citations (number of citations from all publications from this author in this sample of WIL research).

Author	Publications	Citations	Total link strength
Jackson, Denise	66	2386	103
Ferns, Sonia	25	428	50
Tomlinson, Michael	9	529	32
Zegwaard, Karsten E.	18	460	27
Patrick, Carol-joy	6	476	19
Clarke, Marilyn	1	388	13
Bates, Merrelyn	5	376	6
Ley, Tobias	29	413	2

The 100 authors (of the 12,103 authors) with the strongest links of bibliographic coupling, show the influence of Denise Jackson, but the clustering also presents other influential authors in different clusters of WIL research (Figure 6).

FIGURE 6: Bibliographic coupling of authors with at least one publication, based on the 100 authors with the strongest links of bibliographic coupling.



The co-citation cluster is tight of the 68 most cited authors (of the 221,900 authors) (Figure 7). The clustering indicates that the co-cited authors represent different areas of WIL that are suitable to co-cite. The co-citation cluster of authors with a minimum of 500 citations shows three clusters, which are all interconnected (Figure 8).

FIGURE 7: Co-citation of authors with a minimum of 200 citations.

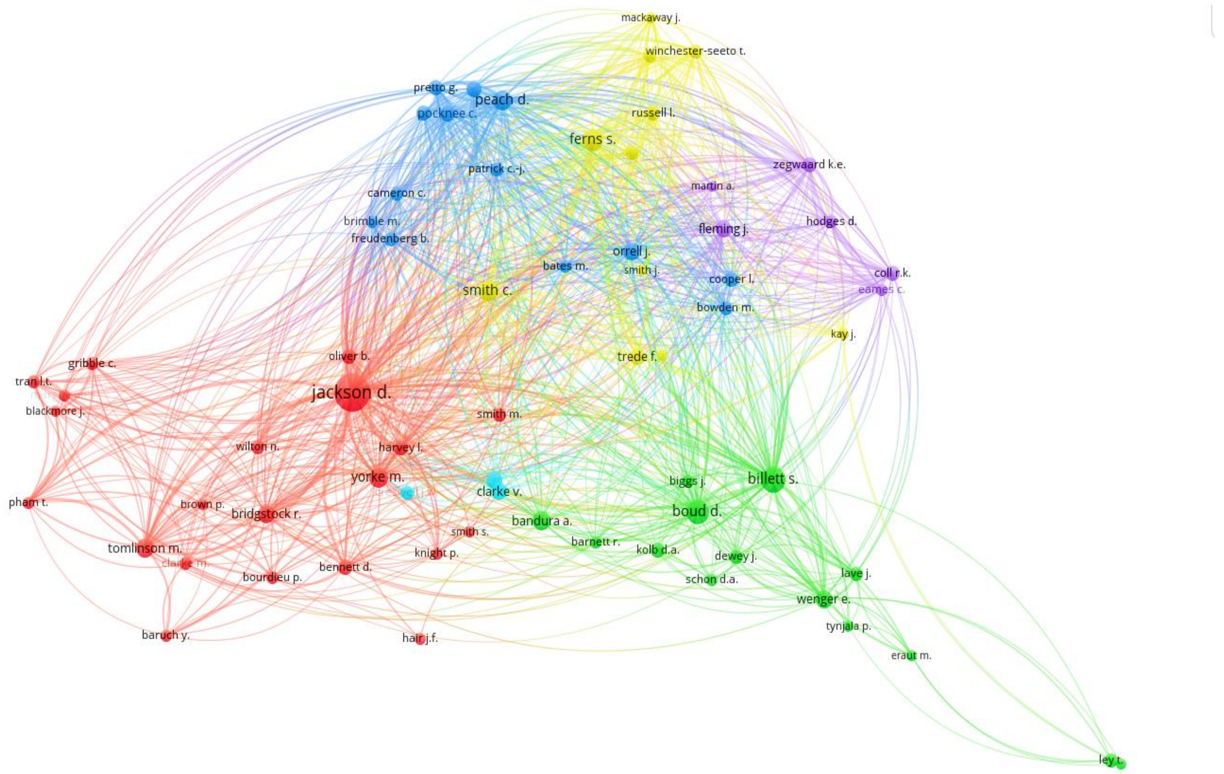
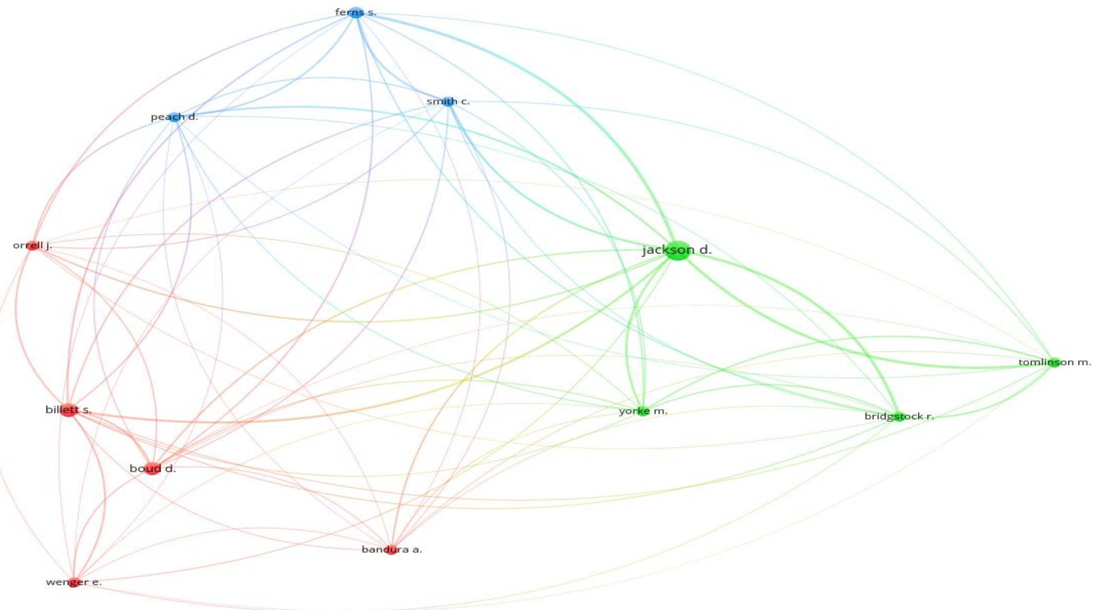


FIGURE 8: Co-citation of authors with a minimum 500 citations.



Influential Publications

There are 31 publications cited more than 100 times and only five publications cited more than 300 times within the sample of WIL publications (Table 3).

TABLE 3: Most cited WIL publications.

Publication	Number of citations
Employability skill development in work-integrated learning: Barriers and best practice (Jackson, 2015)	398
Rethinking graduate employability: the role of capital, individual attributes and context (Clarke, 2018)	388
Developing generic skills at university, during work placement and in employment: graduates' perceptions (Crebert et al., 2004)	330
Facing up to the paradigm of ecological intensification in agronomy: Revisiting methods, concepts and knowledge (Doré et al., 2011)	325
The importance of teaching and learning resilience in the health disciplines: A critical review of the literature (McAllister & McKinnon, 2009)	310

Bibliographic coupling of publications with more than 100 citations, the largest set of connected publications covers 21 publications within this sample of WIL publications (Figure 9 and Table 4).

FIGURE 9: Bibliographic coupling of publications with a minimum of 100 citations

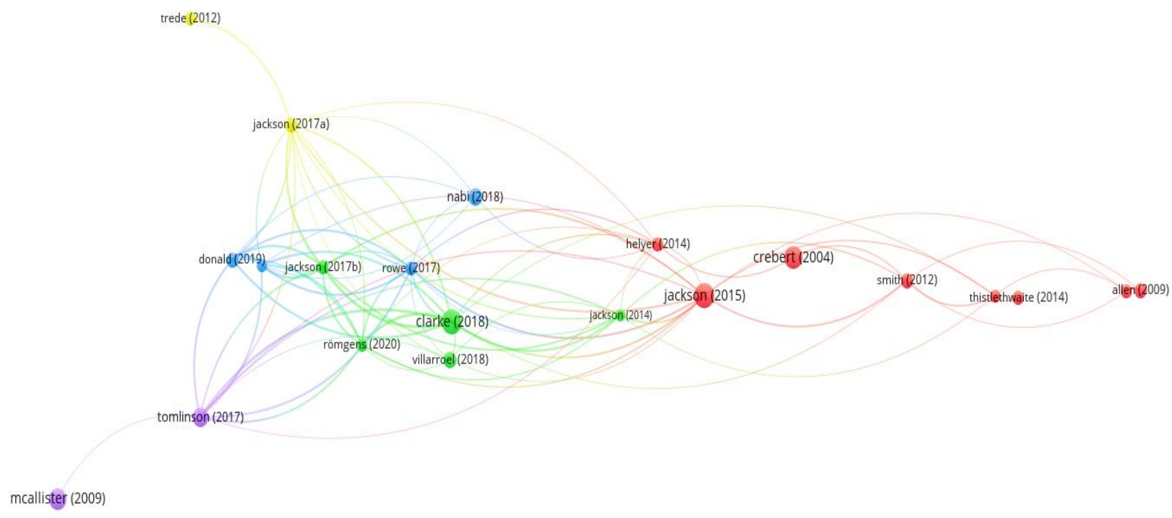


TABLE 4: Bibliographic coupling of publications with more than 100 citations in the largest set of connected publications.

Authors	**Citations**
Employability skill development in work-integrated learning: Barriers and best practice (Jackson, 2015)	398
Rethinking graduate employability: the role of capital, individual attributes and context (Clarke, 2018)	388
Developing generic skills at university, during work placement and in employment: graduates' perceptions (Crebert et al., 2004)	330
The importance of teaching and learning resilience in the health disciplines: A critical review of the literature (McAllister & McKinnon, 2009)	310
Forms of graduate capital and their relationship to graduate employability (Tomlinson, 2017)	263
Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration (Nabi et al., 2018)	206
Authentic assessment: creating a blueprint for course design (Villarroel et al., 2018)	168
Valuing practice over theory: How beginning teachers re-orient their practice in the transition from the university to the workplace (Allen, 2009)	162
Evaluating the quality of work-integrated learning curricula: a comprehensive framework (Smith, 2012)	157
Developing pre-professional identity in undergraduates through work-integrated learning (Jackson, 2017)	151
Competencies and Frameworks in Interprofessional Education: A Comparative Analysis (Thistlethwaite et al., 2014)	141
Integrating theory and practice in the pre-service teacher education practicum (Allen & Wright, 2014)	141
The undergraduate self-perception of employability: human capital, careers advice, and career ownership (Donald et al., 2019)	144
Role of work-integrated learning in developing professionalism and professional identity (Trede, 2012)	138
The role of work experience in the future employability of higher education graduates (Helyer & Lee, 2014)	135
Developing graduate employability skills and attributes: curriculum enhancement through work-integrated learning (Rowe & Zegwaard, 2017)	129
Perceived employability among undergraduates and the importance of career self-management, work experience and individual characteristics (Jackson & Wilton, 2017)	126
Unraveling the concept of employability, bringing together research on employability in higher education and the workplace (Römgens et al., 2020)	117
Students' perceptions of education and employability (Donald et al., 2018)	110
Graduate attributes as a focus for institution-wide curriculum renewal: innovations and challenges (Oliver, 2013)	108
Testing a model of undergraduate competence in employability skills and its implications for stakeholders (Jackson, 2014)	102

There are different clusters of publications when looking at bibliographic coupling and co-citations. When looking at co-cited publications, there are six publications co-cited more than 100 times in this sample of WIL research (Table 5).

TABLE 5: Total link strength of publications co-cited more than 100 times.

Publication	Co-citations	Total link strength
Employability skill development in work-integrated learning: Barriers and best practice (Jackson, 2015)	276	75
Situated learning. Legitimate Peripheral participation (Lave & Wenger, 1991)	200	72
Work integrated learning. A guide to effective practice (Cooper et al., 2010)	211	63
Using thematic analysis in psychology (Braun & Clarke, 2006)	224	59
Realising the educational worth of integrating work experiences in higher education (Billett, 2009)	102	53
Experiential learning: experience as the source of learning and development (Kolb, 1984)	131	50

Influential Sources

When looking at co-citations there are six sources cited more than 1,000 times, with Studies in Higher education being the most co-cited source (Table 6).

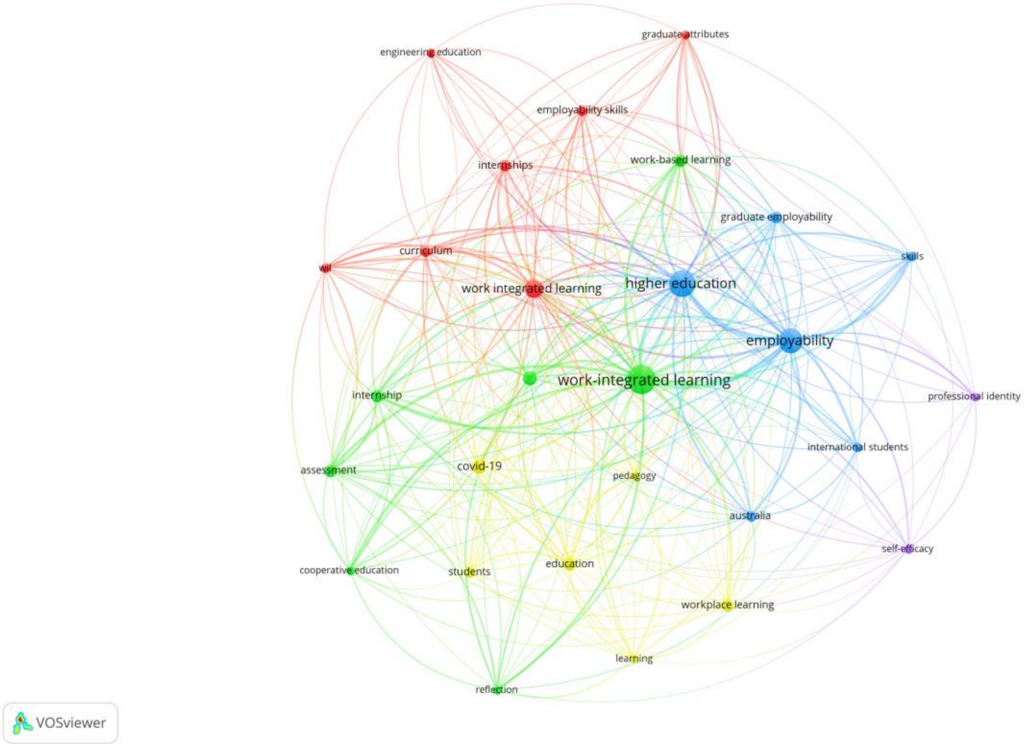
TABLE 6: Citations and total link strength of co-cited sources with a minimum of 1,000 citations.

Source	Citations	Total link strength
Studies in Higher Education	3,471	16,626
International Journal of Work-integrated Learning	3,085	9,044
Higher Education	1,941	10,176
Higher Education Research & Development	1,778	9,548
Education + Training	1,373	7,535
Journal of Vocational Behaviour	1,072	5,603

Influential Keywords

When looking at author keywords there are 10,241 different author keywords used in the publications, but only 20 keywords are used 50 times or more (Figure 10). It is to be noted that "work-integrated learning" is treated as a separate item from "work integrated learning," indicating the importance of spelling of keywords. The clustering of keywords presents five clusters, and the strongest link is between the key words "higher education" and "employability."

FIGURE 10: Author keywords with co-occurrence of 50 or more times.



DISCUSSION

This is probably the first global bibliographic study of WIL, and the results add to the understanding of WIL research and distribution of WIL publications worldwide. The analysis can be used to determine who, among authors, sources, and countries, generates knowledge within and exerts influence on WIL research.

Findings in bibliographic analysis complement one another and produce a multifaceted view of the research topic and show the influence of explored sources, publications, and authors (Hallinger & Kovačević, 2023). In addition, bibliometric network visualizations can be used (Van Eck & Waltman, 2014) to provide further understanding of bibliographic reviews. Coupling clustering methods can lead to further insights of changes over time (Nguyen Quang et al., 2019) and to explore the impact of core publications on current research (Jarneving, 2007). This bibliographic review presents core countries, sources, publications, and authors of WIL research both from the perspective of being highly cited, but also from having strong associations to other publications. This provides an opportunity to identify who has had an impact on research and central clusters (Jarneving, 2007). Therefore, this bibliographic review can stimulate further discussion of the direction of WIL research and publication reach. The results reflect the increasing interest in WIL, and influential countries, sources, publications, and authors in this field. The shown progression of WIL was expected, likewise the great variety in publication sources, considering previous research of WIL as a research field (Fleming & Zegwaard, 2018). The presentation of influential sources can guide WIL researchers in where to follow latest WIL research and where to aim their publications of WIL research to reach an interested audience and impact future research. Competition in becoming published in those journals is likely to increase as WIL research is growing. The results predict a continuous large increase in the number of global publications of WIL, as WIL research is represented in countries from most areas of the world. Australia has made the most outstanding contribution to the WIL research. It is of interest to explore further how this contribution has affected WIL research, but also to explore the reasons behind this development. Considering the lack of research on how macro level policy influences specific research production (Kienast, 2023), the results of this bibliographic review can contribute to future research of macro level policy influence on WIL research.

When exploring the results for publications the titles indicate a strong focus on ’employability’ from the most influential publications, which in turn highlights the importance of ’employability’ in WIL research. In a bibliographic review within a specific research field, the clusters should ideally show that all publications would be interconnected (high edge density) and there would be more than one connection between the same publications (high strength) (Nguyen Quang et al., 2019). However, despite the diversity within WIL and the broadness of disciplines where WIL is used, the clusters are mainly highly interconnected. As WIL research continues, it is probable that societal challenges and needs in practice influence the bibliographic landscape. An example of such an influence is the key word “covid-19,” which is currently among the most co-occurring key words, but likely to be replaced in the future bibliographic landscape of WIL research.

When looking at the most prominent publication (Jackson, 2015), this publication is cited across clusters. According to our results, this publication has had a major impact on the research field of WIL, however it is important to note the limitations in the data that this bibliographic review is based on, such as only using the Scopus database and the used terms. It is possible that inclusion of additional databases may have altered the results to some extent, but the publication would still be highly influential in WIL research. Analysis of author co-citation presents insight into how authors (domain experts) connect ideas between publications within WIL research. From our findings Denise Jackson is an important author in WIL research, however there may be differences in specific countries. When comparing the findings from this global bibliographic review with a country-specific bibliographic review of WIL, research from Sweden, it is of interest to note that according to co-citations Stephen Billet is a more influential author in Swedish WIL research (Areskoug Josefsson et al., 2024). There are also differences between those two bibliographic reviews regarding most co-cited sources. In our findings the most influential sources are in the field of higher education and education (Table 6), but in the bibliographic review of Swedish WIL research, the most influential sources are in also in nursing research (Areskoug Josefsson et al., 2024). This difference emphasizes how WIL research can develop in different directions in separate contexts, and is relevant to inform for further research of country-specific or discipline specific variations in the bibliographic landscape of WIL research.

The diversity of author keywords and sources for publication implicates that WIL is used in a broad range of research across disciplines. This manuscript only presents author keywords, as those keywords are chosen by the authors and thereby can show a greater variety than index keywords. The use of WIL with or without a hyphen in keywords is to be noted, as the use of the hyphen can affect how the publication is found in literature searches (Salvador-Oliván et al., 2019). The use of WIL with or without a hyphen can have several reasons, however the results of this bibliographic review show that “work-integrated learning” and “work integrated learning” are placed differently within the keyword cluster. The diversity in keywords underpins the diversity of WL research, but the five interconnected clusters also indicate that there is a strong connectedness within WIL research topics. This can be seen as an asset to the research field, but also indicates the importance of a shared understanding of what WIL actually is. Additional research of which are the most used definitions of WIL research, and their features, could be of interest to explore further, based on the results of influence from this bibliographic review.

Bibliographic reviews show the current publication landscape has not addressed the limitation of publications that are more recently published having less impact, as they have not had the same possibilities to become cited, as older publications have. When looking at citations and co-citations, time must be acknowledged, as number of citations and co-citations depend on the age of the publication (Mas-Tur et al., 2021). This bibliographic review can therefore be seen as a baseline, to which future changes in the bibliographic landscape of WIL can be compared and provide a direction of hot topics and future research trends. Another limitation concerns bibliographic coupling, as linkage through bibliographic coupling may be due to unrelated content in the specific publication (Mas-Tur et al., 2021).

Limitations

The broadness of WIL is a challenge in bibliographic studies of WIL, as publications covering aspects of WIL may not have used the term WIL, and then those publications will not show in this type of analysis. The level of description of WIL/WIE within the publications also varies, as the sample is based on if either of the terms have been present in the publication. Therefore, the findings from this bibliographic review should be viewed from the perspective that this is what was found when using the described methodology and the limited to publications using the chosen search terms. Using other databases and inclusion criteria would provide additional understanding of the research field of WIL, but regardless of choice of database, there are limitations to be aware of. Citations presented in this study's bibliographic coupling, only cover the number of citations within the publications found in the bibliographic Scopus search. Thus, those publications may have more citations of various kinds outside of the setting of this analysis, due to search strategy limitations such as the search terms and the selected database. This is also the reason why citations in co-citation analysis and bibliographic coupling differs from a basic citation analysis performed in, for example, search engines like Google Scholar. For example Google Scholar unique citations have lower scientific impact than citations found by Scopus, even though Google Scholar has a broader coverage (Martín-Martín et al., 2018). The findings of this study should be considered in the context of some limitations and as such, the findings of this study may not be representative of all WIL research. The choice to exclude articles of work-based learning can be critiqued, as this can be seen as part of WIL. However, this choice was made to clarify the publication landscape of publications using the term WIL (or WIE) with the focus on the integration of theoretical knowledge and practice. In further bibliographic research it would be of interest to see similarities or differences between the bibliographic landscape of work-based learning publications to the bibliographic landscape of WIL. In addition, the same methodology was used in a previous bibliographic review of Swedish WIL research (Areskoug Josefsson et al., 2024), which enabled comparison of the results.

A language limitation was not included in the search, but as the search term was in English, there is a linguistic bias present. This bias is likely to affect the results, and it is probable that there are additional WIL publications in other languages where the English term WIL is not used.

Another limitation is potential errors in metadata, that are not fixed by use of a system thesaurus, as for example, there were publications where country origin could not be detected within the metadata. However, the inclusion of university librarians in the research group, manually checking the metadata and re-running analyses has supported in minimizing such risks.

As the data provided steers the results, there are limitations related to change of names. There are sources that change names, such as the Asia-Pacific Journal of Cooperative Education, which is now the International Journal of Work-integrated Learning. In this review the separate names are treated as separates sources, except for this journal where the changed name was known. This limitation regarding changed names can also occur if authors change their names during their academic publication career.

CONCLUSION

The amount of WIL research is increasing rapidly and there is global interest in the research field, even if there are dominating countries, such as Australia. From citations, co-citations, and bibliographic coupling it is evident that there are highly influential countries, sources, publications, and authors in WIL research, which shape the bibliographic landscape of WIL. As WIL is an emerging research field, additional bibliographic reviews in coming years can show future trends in WIL research and potential differences between countries and disciplines.

AUTHOR CONTRIBUTIONS

Kristina Areskoug Josefsson conceptualized the study. Kristina Areskoug Josefsson, Anna Wilner and Elisabeth Näverå designed the study. Kristina Areskoug Josefsson and Daniel Masterson analyzed the data. Kristina Areskoug Josefsson drafted the manuscript. All authors contributed to writing and finalizing the manuscript.

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About the Journal

The International Journal of Work-Integrated Learning (IJWIL) publishes double-blind peer-reviewed original research and topical issues related to Work-Integrated Learning (WIL). IJWIL first published in 2000 under the name of Asia-Pacific Journal of Cooperative Education (APJCE).

In this Journal, WIL is defined as:

> *An educational approach involving three parties – the student, educational institution, and an external stakeholder – consisting of authentic work-focused experiences as an intentional component of the curriculum. Students learn through active engagement in purposeful work tasks, which enable the integration of theory with meaningful practice that is relevant to the students' discipline of study and/or professional development* (Zegwaard et al., 2023, p. 38*).

Examples of practice include off-campus workplace immersion activities such as work placements, internships, practicum, service learning, and cooperative education (co-op), and on-campus activities such as work-related projects/competitions, entrepreneurships, student-led enterprise, student consultancies, etc. WIL is related to, and overlaps with, the fields of experiential learning, work-based learning, and vocational education and training.

The Journal's aim is to enable specialists working in WIL to disseminate research findings and share knowledge to the benefit of institutions, students, WIL practitioners, curricular designers, and researchers. The Journal encourages quality research and explorative critical discussion that leads to the advancement of quality practices, development of further understanding of WIL, and promote further research.

The Journal is financially supported by the Work-Integrated Learning New Zealand (WILNZ; www.wilnz.nz), and the University of Waikato, New Zealand.

Types of Manuscripts Sought by the Journal

Types of manuscripts sought by IJWIL is primarily in two forms: 1) *research publications* describing research into aspects of work-integrated learning and, 2) *topical discussion* articles that review relevant literature and provide critical explorative discussion around a topical issue. The journal will, on occasions, consider good practice submissions.

Research publications should contain; an introduction that describes relevant literature and sets the context of the inquiry. A detailed description and justification for the methodology employed. A description of the research findings - tabulated as appropriate, a discussion of the importance of the findings including their significance to current established literature, implications for practitioners and researchers, whilst remaining mindful of the limitations of the data, and a conclusion preferably including suggestions for further research.

Topical discussion articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical and scholarly discussion on the importance of the issues, critical insights to how to advance the issue further, and implications for other researchers and practitioners.

Good practice and program description papers. On occasions, the Journal seeks manuscripts describing a practice of WIL as an example of good practice, however, only if it presents a particularly unique or innovative practice or it was situated in an unusual context. There must be a clear contribution of new knowledge to the established literature. Manuscripts describing what is essentially 'typical', 'common' or 'known' practices will be encouraged to rewrite the focus of the manuscript to a significant educational issue or will be encouraged to publish their work via another avenue that seeks such content.

By negotiation with the Editor-in-Chief, the Journal also accepts a small number of *Book Reviews* of relevant and recently published books.

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