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11 topics among 7,591 employability research abstracts (1942–2024): a structural topic model and call for interdisciplinary perspectives

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Abstract

Purpose – Our goal was to empirically evaluate what topics can be discerned in employability scholarship. We sought to illustrate the diverse specialised expert knowledge across the full multidisciplinary breadth of employability literature, not only in the two predominant fields of graduate employability and career development.

Design/methodology/approach – Structural topic modelling, an unsupervised statistical method that helps discern latent topics in a corpus of texts, analysed the abstracts of 7,591 journal articles on employability. Exploratory analysis showed that the 11-topic model offered the highest number of distinct and meaningful topics.

Findings – The 11 topics within the field of employability reflect research in a range of scholarly disciplines. We summarise the content of each topic and visualise the topic profiles of top journal articles, journals and authors.

Research limitations/implications – Recent calls for greater integration between graduate employability and career development scholarships are warranted. But this study demonstrates that employability is studied in a much broader range of disciplines than just those two. Therefore, we argue that future scholarship should foster the advancement and application of research insights across the full breadth of disciplines, education and training systems and socio-cultural contexts. By doing so, the often-noted fragmentation and fuzziness in the employability literature will begin to be addressed.



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Originality/value – Existing reviews of employability research have been grounded in a particular scholarly discipline. In contrast, we adopt an inductive approach, surveying the literature through the widest possible lens, free from disciplinary biases and assumptions.

Keywords Employability, Graduate employability, Career development, Structural topic modelling

Paper type Research paper

Introduction

Contemporary scholars of *employability* acknowledge that the concept is studied in diverse academic disciplines and note the resulting lack of consistent definitions or conceptual approaches (Akkermans *et al.*, 2024a; Fugate *et al.*, 2021; Healy *et al.*, 2022; Van Harten *et al.*, 2022). Some scholars critique those in other fields for overlooking theoretical and empirical perspectives that are widely accepted in their own (Akkermans *et al.*, 2024a; Healy *et al.*, 2022). Therefore, to mitigate against the oft-noted diffusion of employability research, it is helpful to consider the degree to which employability scholarship is multi-, inter-, or transdisciplinary in nature.

In multidisciplinary research, the same subject is studied independently in many different academic disciplines, but theories and findings in each are seldom integrated with those from others (Healy *et al.*, 2022; Klein, 2017). In comparison, interdisciplinary research actively pursues some degree of epistemological integration between two fields (Klein, 2017). Transdisciplinary scholarship goes further, articulating meta-theories that transcend the narrow scope of disciplinary research and cut across multiple fields of scholarship, such as structuralism, Marxism, constructivism, and the many other “isms” in the social sciences (Klein, 2017).

Several recent articles have highlighted different disciplinary discourses in employability research and argued for greater integration between them. Mapping citation networks of scholarly literature, Healy *et al.* (2022) illustrated scarce connections between the graduate employability and career development domains. Similarly, Akkermans *et al.* (2024a) compared the parallel scholarship of graduate employability and worker employability. In addition, Akkermans and colleagues (Akkermans *et al.*, 2024b; Akkermans *et al.*, 2023) have critiqued worker employability scholarship as being too focused on individual agentic factors and overlooking contextual, processual, and relational factors, all of which are well-established concepts in graduate employability scholarship (Bui and Nghia, 2022; Holmes, 2013; Tomlinson, 2008).

Specific disciplinary points of view are also evident in recent literature reviews and surveys. For example, reviews by Fugate *et al.* (2021) and Van Harten *et al.* (2022), published in *Academy of Management Annals* and *European Journal of Work and Organizational Psychology*, respectively, included only studies focused on worker employability, excluding higher education research. On the other hand, reviews by Healy *et al.* (2022) and Donald *et al.* (2024a), both published in *Studies in Higher Education*, included only studies expressly focused on higher education. Further, although the concept of *employability capitals* integrates some transdisciplinary concepts of human, social, and cultural capital (Donald *et al.*, 2024a), no truly transdisciplinary approach has yet transcended the diversity of disciplinary communities and traditions in the study of employability.

However, employability scholarship is more broadly multidisciplinary than just graduate employability and career development. Concern for how people achieve educational, career, and employment success motivates research in many disciplines. To apply a geographical metaphor to employability scholarship, existing reviews map a single region of the disciplinary landscape, or at best the boundaries between adjacent territories (Healy *et al.*, 2022).

In comparison, our goal for this study was to empirically evaluate the entire landscape of employability research through the widest possible lens, unconstrained by disciplinary boundaries and biases, as if captured from a satellite. To do so, we applied structural topic

modelling (STM; Roberts *et al.*, 2019) to the abstracts of 7,591 employability research publications, with no inclusion criteria related to the field of research or discipline. To the best of our knowledge, this is the first time that STM has been applied to employability scholarship.

To help mitigate against disciplinary bias, the authorship team is intentionally interdisciplinary, with specialists in career education and counselling, graduate employability pedagogies and outcomes, vocational and organisational psychology, and human resource management. We sought to answer the following research questions: (1) what latent topics can be discerned in a broad selection of employability scholarship?, (2) how do these topics relate to the various disciplinary fields and scholarly communities who study employability?, and, (3) how might employability research communities benefit from adopting a broader interdisciplinary view of the literature?

Structural topic modelling of employability scholarship

Topic models are unsupervised statistical models that analyse word frequencies and co-occurrence in a corpus of texts, from which the researcher may discern latent topics (Lindstedt, 2019; Roberts *et al.*, 2019). A *topic* is a cluster of words that frequently co-occur and are relatively exclusive to only that topic. Topic models do not assign individual texts to a single topic, but rather each text is a mixture of topics in varying proportions (Roberts *et al.*, 2019). *Structural* topic modelling allows for the addition of metadata (e.g. authors, journals) as covariates, enabling the analyst to explore relationships between topics and metadata variables (Roberts *et al.*, 2019).

We conducted this study according to the five-step workflow for science-mapping reviews suggested by Zupic and Čater (2015):

- (1) Study design
- (2) Data retrieval, uploading, and cleaning
- (3) Data analysis
- (4) Data visualisation
- (5) Interpretation

This workflow combines the systematic and transparent process of a systematic literature review with the efficiency and scale of a computational bibliometric analysis (Zupic and Čater, 2015). We have described our study design in the introduction to this article. We will describe the other stages of our workflow in the subsequent sections.

Data retrieval, uploading, and cleaning

The dataset consists of records collected from the Scopus and Web of Science (WoS) research databases from a search for article titles, abstracts, and keywords. Searches were restricted to words related to employment and education. To illustrate, the search string for Scopus was: ((TITLE-ABS-KEY (employability) AND TITLE-ABS-KEY (student OR graduate OR job OR skill OR career OR profession* OR worker OR employer OR employee)) AND ((LIMIT-TO (DOCTYPE, "ar") AND (SRCTYPE, "j") AND (LANGUAGE, "English"))). The search included only articles in English, to allow for the textual analysis that forms the basis of STM.

The searches, conducted on 21 February 2024, resulted in 6,734 records from Scopus and 4,792 from WoS. After downloading full bibliographic records, merging the Scopus and WoS records, removing duplicates and incomplete records, our dataset included 7,591 records published between 1942 and February 2024.

R statistical analysis software was used for all data processing, analysis, and visualisation. Our code and raw data is available in [Supplementary file 1](#).

Abstracts were prepared for analysis by removing punctuation, symbols, numbers, digits, and copyright information. We removed the non-English portions of bilingual abstracts, common stop words (e.g. prepositions, particles), and common abstract meta-language (e.g. aim, method, results). Finally, we converted each word to its *lemma*, or base form (e.g. teaching and taught were changed to teach), to reduce noise from plural and conjugate forms.

Data analysis

Selecting the number of topics. Structural topic modelling (Roberts *et al.*, 2019) is an exploratory method with no inherent ability to assert a definitive number or nature of topics in a dataset (Lindstedt, 2019; Weston *et al.*, 2023). Topic modelling algorithms describe exactly as many topics as the researcher asks them to, but whether those topics are meaningful depends on the researcher's evaluation. When beginning a topic model study, the researcher applies an *a priori* estimation of how many topics to model and then iteratively evaluates and refines the model until they are satisfied that the result provides the maximum number of qualitatively meaningful, distinct, and coherent topics (Weston *et al.*, 2023).

For this study, we evaluated potential topic numbers according to the balance of their semantic coherence and exclusivity (Lindstedt, 2019; Weston *et al.*, 2023). Semantic coherence refers to the likelihood that the most probable words in a topic co-occur in the same documents. Exclusivity refers to the likelihood that words appear in only one topic. The optimal number of topics should show a balance of higher values for both semantic coherence and exclusivity (Lindstedt, 2019; Weston *et al.*, 2023).

Our selection of the number of topic models consisted of three steps. First, we generated candidate models of between 3 and 30 topic numbers, in intervals of three, and then evaluated their semantic coherence and exclusivity to narrow the window of suitable topic numbers. The results suggested that between 6 and 12 topics may be optimal, with the semantic coherence of models of more than 12 topics degrading while gaining little in exclusivity. Then, we modelled and evaluated a finer range of 6–12 topic numbers. The results suggested that 10 or 11 topics would yield the best balance between semantic coherence and exclusivity.

Finally, to decide between 10 or 11 topics, we ran and evaluated each model. We manually reviewed lists of keywords and article titles most statistically representative of each topic and decided that the 11-topic model offers the highest number of meaningful, distinct, and coherent topics. The keywords and representative texts for the 10, 11, and 12 topic models are available for comparison in [Supplementary file 2](#).

Interpreting and defining topics

Topic models are unable to explain the meaning of the topics they identify. Rather, the researcher interprets the meaning based on their knowledge of the dataset and research fields. Interpreting and defining topics begins with reviewing the words and texts most associated with each to observe the themes within them and to distinguish them from other topics (Lindstedt (2019), Roberts *et al.* (2019), Weston *et al.* (2023)). [Table 1](#) shows the most probable and the most frequent and exclusive (FREX) words for each topic. The topic names were not generated by the model but coined by the authors after our review of the topic content.

We also reviewed the titles and abstracts of texts with the highest proportions of each topic to evaluate the topics' coherence and to summarise their characteristics. Together, the key words and representative titles and abstracts allow us to observe and describe the content of each topic, without disciplinary bias introduced by information such as author, journal, or field of study.

Although STM of research abstracts might resemble a literature review in some ways, the method is based only on the statistical analysis of the words used in a corpus of texts and is therefore ignorant of which scholarship is the most exemplary or influential (Roberts *et al.*, 2019). For this reason, we do not provide citations in our summaries, which would introduce our own scholarly subjectivities and shift the focus from the content of the topics. The

Table 1. Topic keywords

1. Graduate employability pedagogies (15.78%)
 Prob: student, learning, work, university, practice, experience, teaching, development, education, design, project, assessment, develop, activity, skills
 FREX: wil, authentic, module, eportfolio, reflective, experiential, learning, pedagogy, pedagogical, translation, integrated, teaching, capstone, project, reflection
2. Graduate employability capabilities (12.44%)
 Prob: graduate, university, employer, education, high, skills, market, student, employment, degree, business, competencies, institution, perception, datum
 FREX: graduate, internships, internship, tourism, graduates, phd, veterinary, accounting, heis, sport, marketing, competencies, master, degree, lis
3. Policy and sociology (11.4%)
 Prob: policy, education, social, labour, market, economic, people, young, development, high, focus, government, youth, public, work
 FREX: migrant, neoliberal, union, refugees, political, policy, activation, discourse, vet, neet, credential, alp, neoliberalism, roma, england
4. Training and skill development (11.09%)
 Highest Prob: skills, skill, education, training, industry, engineering, development, technology, communication, knowledge, technical, soft, competence, digital, teacher
 FREX: tvet, engineer, technical, engineering, digital, ict, skill, soft, technology, communication, solving, industrial, literacy, skills, technological
5. Worker employability (8.31%)
 Prob: relationship, perceived, employees, effect, organization, employee, job, work, organizational, implication, result, role, resource, positive, model
 FREX: turnover, organizational, employee, modelling, equation, organization, mediation, employees, hrm, mediate, mediating, positively, perceived, moderating, relationship
6. Unemployment and insecurity (8.28%)
 Prob: job, worker, employment, work, market, labour, age, unemployment, effect, time, insecurity, increase, result, low, find
 FREX: temporary, insecurity, search, labour, worker, unemployment, probability, security, older, permanent, unemployed, wage, locked, retirement, seeker
7. Employability measures (8.28%)
 Prob: student, analysis, factor, performance, model, result, academic, university, datum, high, test, scale, questionnaire, quality, measure
 FREX: reliability, mining, validity, item, instrument, items, scale, correlation, measure, statistical, psychometric, version, confirmatory, indicators, descriptive
8. Career orientations (6.75%)
 Prob: career, development, success, work, identity, professional, efficacy, individual, personal, future, student, adaptability, capital, transition, life
 FREX: career, adaptability, music, identity, resilience, psychology, protean, efficacy, exploration, success, musician, aspiration, orientation, counselling, emotional
9. Barriers to employment (6.41%)
 Prob: employment, participant, people, employer, job, program, individual, disability, disabilities, work, barrier, training, person, result, group
 FREX: disabilities, applicant, offender, accommodation, autistic, hearing, prison, disclosure, autism, discrimination, accommodations, assistive, candidate, hire, hiring
10. Rehabilitation (5.66%)
 Prob: health, work, patient, mental, care, year, intervention, result, methods, medical, relate, physical, occupational, return, ability
 FREX: patient, cancer, epilepsy, pain, physicians, drug, tbi, substance, alcohol, survivor, physician, military, medical, pwe, radiology
11. International education and mobility (5.6%)
 Prob: student, social, education, international, high, language, english, university, entrepreneurship, entrepreneurial, country, global, mobility, cultural, media
 FREX: abroad, intercultural, emi, entrepreneurial, language, english, volunteering, media, international, entrepreneurship, foreign, linguistic, internationalisation, overseas, bilingual

Source(s): Authors' work

summaries should be read as qualitative summaries of the language used in the abstracts and titles associated with each topic. We do note the disciplinary nature of the journals in which the topics are predominantly found, to illustrate how topics lean toward particular fields of scholarship. The reader may find the articles associated with each topic in [Supplementary file 3](#). Below, we summarise each of the 11 topics.

- (1) **Graduate employability pedagogies.** Explores a variety of pedagogical approaches that support university students' employability. Studies range in scope from institution level curriculum design to unit level teaching and assessment methods. Much research focuses on work-integrated learning and other forms of experiential learning. Other approaches include project-based learning, reflective practice, portfolios, and collaborative learning. Authentic assessment is a common theme that cuts across pedagogical approaches, describing how pedagogical practices reflect real-world professional contexts. Most articles were published in higher education journals or discipline-specific teaching and learning journals.
- (2) **Graduate employability capabilities.** Evaluates the alignment between graduate attributes and learning outcomes with industry expectations. Much research analyses evaluative judgements of graduates' capabilities from employers, either directly through surveys and interviews or indirectly through job advertisements or professional competency frameworks. Many articles highlight perceived gaps between the capabilities possessed by graduates and those sought by employers. Some studies also examine the relationships between co-curricular activities and work experience, the development of employability capabilities, and employment outcomes. Articles were published in higher education and discipline-specific teaching and learning journals.
- (3) **Policy and sociology.** Includes social, political, and economic discussions about the role of education in providing skilled workers to meet the demands of the labour market. Two competing socio-political perspectives are apparent. Scholarship from a neoliberal perspective assigns most responsibility for participation and success in labour markets to the individual, based largely on notions of individual human capital. Critical scholarship contests characterisations of employability as an individual virtue and critiques socio-economic factors that impede equal access to quality education and employment. Articles were published in educational sociology and higher education journals and journals focused on migration, welfare or youth studies.
- (4) **Training and skill development.** Describes the role that vocational and higher education, organisational human resource development, and government policy play in enabling people to develop technical and human skills to meet the evolving needs of the labour market. Much research explores the importance of human skills such as communication, collaboration, and problem solving, in addition to profession-specific technical skills. Research often compares the views of different stakeholders and describes skills-based employability frameworks. Articles were published in various subject-specific or industry-specific journals, many of them focused on engineering and other technical fields.
- (5) **Worker employability.** Explores various personal strengths that enable job transitions and help people realise their potential for employment and career success. Research more often explores worker perspectives than employer perspectives and very little research considers the reciprocity between the two. Most of the research measures individuals' self-ratings at specific moments in time, with little research exploring the inherent dynamism of employability as a process of learning, self-management, and goal-directed behaviour. Articles were published in

-
- general and discipline-specific management and human resource management or in career development, vocational, or work and organisational psychology journals.
- (6) **Unemployment and insecurity.** Investigates the absence of employability, in the form of unemployment or job insecurity. Most scholarship is focused on the individual, either on the personal factors that predispose a person to be at risk of unemployment or the deleterious effects and traumatic experiences of unemployment and job insecurity. Cohorts frequently studied include youth, the aged, and people with disability. Some macro-level research explores how labour market conditions and policies result in, or mitigate against, unemployment. Articles were published in organisational psychology, human resources management, and labour economics journals.
- (7) **Employability measures.** Describes a range of approaches toward the measurement of graduate or worker employability. Much research describes psychometric instruments for measuring individual-level employability-related variables and outcomes, such as skills and competencies, self-efficacy, perceived employability, employment outcomes, and career satisfaction. Other research describes data-mining studies which analyse large datasets related to student or worker demographics, course specifications, learning outcomes, organisational characteristics, employment indicators, or job descriptions. Articles were published in journals across higher education, vocational psychology, and discipline-specific areas.
- (8) **Career orientations.** Explores a range of psychological traits, mindsets, and cognitive processes that enable individuals to proactively manage their careers, achieve success, navigate challenges, and maintain a coherent professional identity. Commonly studied career orientations include adaptability, resilience, self-efficacy, and optimism. Much research argues that these career orientations are more necessary than ever because contemporary labour markets and work environments are so changeable, disrupted, and unstable. Articles were mainly published in organisational and vocational psychology, career development, and human resource management journals.
- (9) **Barriers to employment.** Confronts a variety of external, structural barriers to employment experienced by people on the margins of the labour market. Research describes workplace discrimination based on factors such as disability, physical and mental health, race, gender, social class, migration status, and criminal offending. Intersectional research that considers the compounding effects of multiple barriers to employment is rare. Articles were predominantly published in rehabilitation, disability, education, and criminology and justice journals.
- (10) **Rehabilitation.** Describes the impact of illness or injury on a person's employability or evaluates medical intervention or rehabilitation protocols. Most studies focus precisely on one illness or injury, with some offering systematic reviews or meta-analyses of research related to specific conditions. The term *employability* typically means employment status, rather than referring to the psycho-social conceptualisations of employability common in graduate employability or career development scholarship. Articles were published in medical journals related to the specific illness or injury being studied.
- (11) **International education and mobility.** Evaluates how international study, including full degrees and shorter study-abroad programs, enables the development of human capital, inter-cultural capability, and language proficiency, especially in English. Some articles focus on the employability of international graduates and migrants, including hindrances to employment such as language competence and accents, lack

of cultural or social capital, or limited professional networks. Articles were published in a variety of journals, including international education, general and discipline-specific higher education, linguistics and language teaching, and sociology.

Visualising relationships between topics. After naming and summarising the topics, we explored how they relate to each other in a topic correlation network. Figure 1 shows where two topics with a positive correlation coefficient are connected, illustrated by a dashed line.

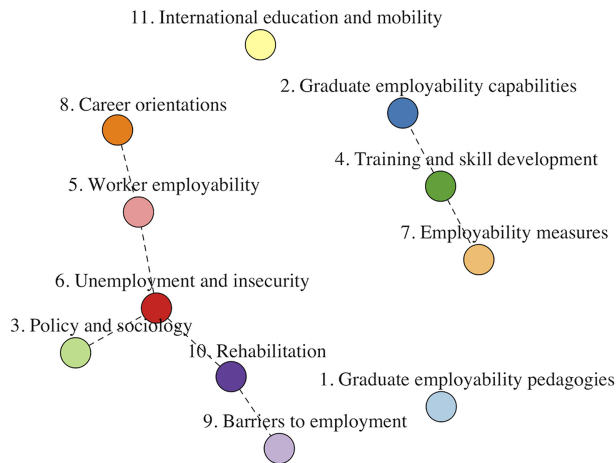
Figure 1 reflects some broad disciplinary relationships and distinctions, such as that between the higher education topics on the right and the career development topics on the left. Note also that the topics are only connected in dyads, with no triadic relationships, suggesting that the conceptual structure of the literature is relatively diffuse and therefore reflecting limited interdisciplinary exchange between them.

We then applied the publication year of each article as a covariate to illustrate how topic proportions changed over time, illustrated in Figure 2. The lines show the relative proportions of each topic by year of publication. The plot is truncated to start in 1980, to focus on the inflection point between the trends and remove the years in which few articles were published, which exaggerates the differences between the trend lines.

Figure 2 shows that for much of the 20th Century, employability was predominantly studied in the context of rehabilitation, barriers to employment, and unemployment and insecurity. In the 1990s, employability began to be studied as an outcome of education and by the late 2000s, graduate employability topics had overtaken career development topics as the highest proportion of employability scholarship.

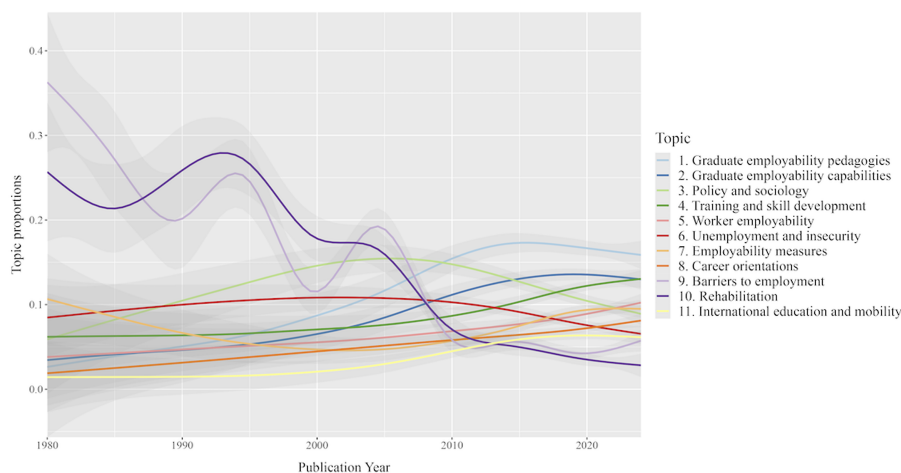
Profiling scholarship with the 11-topic model. Our topic model can be used to profile articles, journals, and authors by visualising each as a unique blend of topics, based on the proportions of topic keywords in their abstracts. These topic profiles can be plotted to illustrate a conceptual fingerprint unique to each article, journal, or author. Figure 3 illustrates the topic profiles of the ten most cited articles in the dataset. The visualisations further validate our topic model as the topic profiles align closely to the actual content of the articles.

Andrews and Higson (2008), Bridgstock (2009), and Tomlinson (2008) offered conceptualisations and critiques of graduate employability, anchored in higher education policy and sociology discourses and focused more on outcomes than pedagogies. In



Source(s): Authors' work

Figure 1. Topic correlation plot



Source(s): Authors' work

Figure 2. Topic prevalence by year of publication

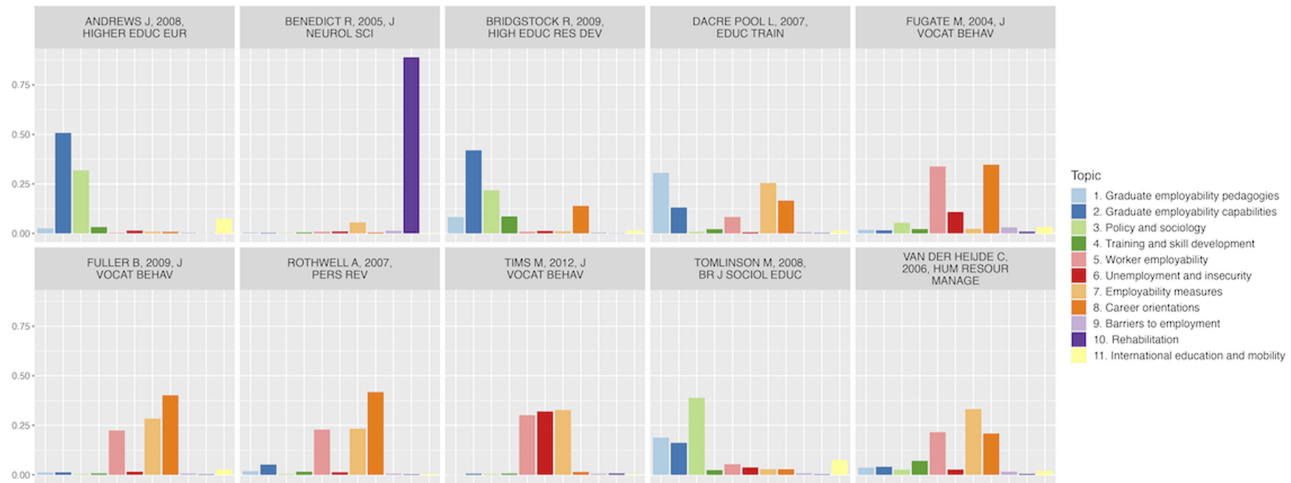
comparison, [Dacre Pool and Sewell \(2007\)](#) focused on graduate employability pedagogy, presenting a framework to support the teaching and assessment of student employability. [Benedict et al. \(2005\)](#) investigated quality of life and employment among people with multiple sclerosis, exclusively within the rehabilitation topic. [Fugate et al. \(2004\)](#) advanced a theoretical framework of worker employability which included the career orientations of adaptability and identity, while [Fuller and Marler \(2009\)](#) conducted a meta-analysis of research on proactive career orientations. The remaining authors developed scales to measure employability ([Rothwell and Arnold, 2007](#); [Van der Heijde and Van der Heijden, 2006](#)) and job crafting ([Tims et al., 2012](#)).

Figure 4 illustrates the profiles of the ten journals in the dataset with the highest h-index, representing the highest number of publications which have been cited at least that same number of times. The h-index is not a reliable indicator of quality or influence but does highlight the most productive and most cited journals and authors.

Again, the topic profiles of the journals align well with their actual scope and focus. Compared to the tightly focused topic profiles of the articles in Figure 3, the topic profiles of journals reflect the greater breadth of coverage in journals' conceptual content. The topic profiles illustrate which journals are comparatively more specialised, such as *Higher Education Research and Development*, the *International Journal of Human Resource Management* and the *Journal of Vocational Rehabilitation*.

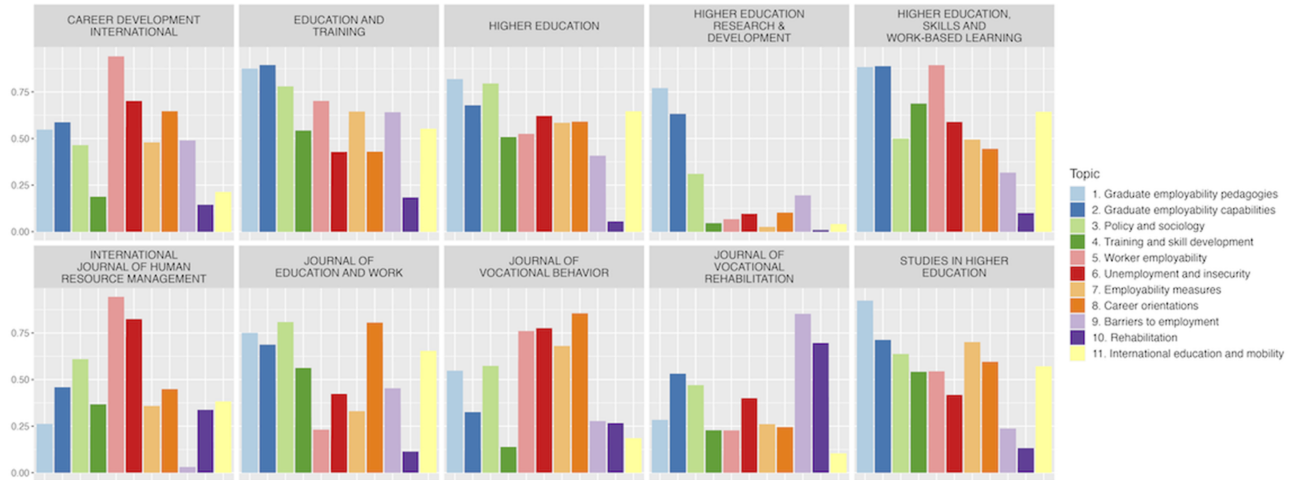
Figure 5 illustrates the profiles of the ten authors in the dataset with the highest h-index, limited to those articles for which they are listed in the first author position.

Six authors—[Akkermans](#), [De Cuyper](#), [De Lange](#), [De Vos](#), [Forrier](#), and [Van der Heijden](#)—can broadly be described as career development scholars. Nonetheless, the fidelity of our topic profiles illustrates the more precise foci of their scholarship within the broader field of career development. Similarly, our topic models illustrate differences in focus among the four higher education authors, with [Bennett and Jackson](#) more focused on graduate employability pedagogy while [Lindsay and Tomlinson](#) focus more on policy and sociology. The author topic profiles highlight those scholars who integrate perspectives from both career development and higher education: [Akkermans](#), [Bennett](#), [Jackson](#), [Tomlinson](#), and [Van der Heijden](#).



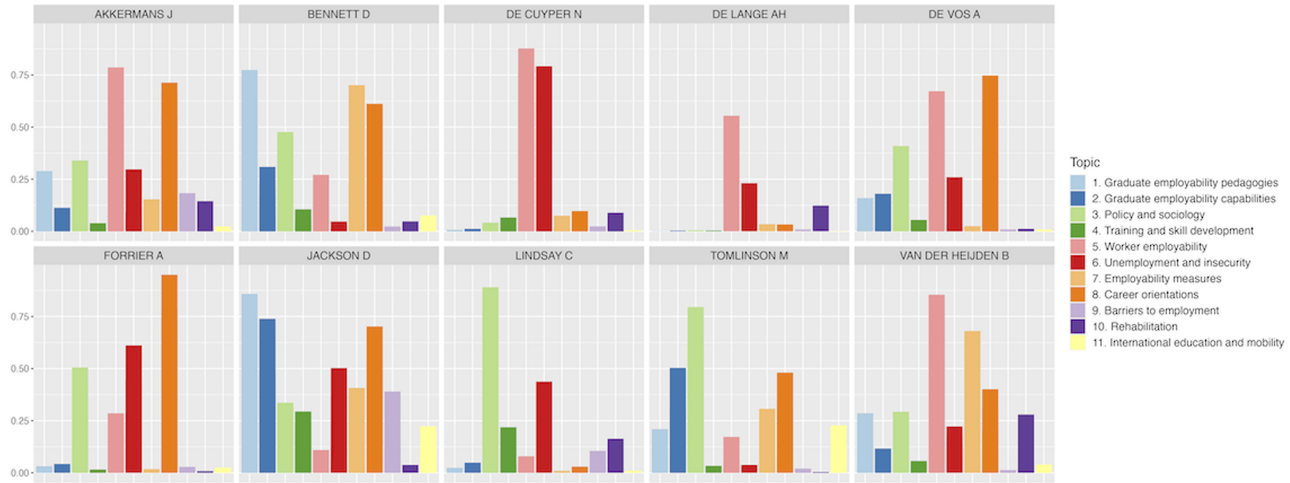
Source(s): Authors' work

Figure 3. Topic prevalence by article



Source(s): Authors' work

Figure 4. Topic prevalence by journal



Source(s): Authors' work

Figure 5. Topic prevalence by author

Discussion

By taking an inductive approach to mapping the full breadth of employability scholarship, we have highlighted the diversity, nuance, and specialised expert knowledge that inhabits this body of literature. Our analysis echoes some disciplinary boundaries, but also points toward conceptual themes that cut across disciplines, highlighting potential areas for interdisciplinary collaboration and integration of theories, methods, and empirical findings.

Theoretical contribution

Recent calls for greater integration between graduate employability and career development (Akkermans *et al.*, 2024a; Akkermans *et al.*, 2023; Healy *et al.*, 2022) are early steps toward interdisciplinarity. However, to this point such calls have only encompassed these two fields and still neglect the full breadth of specialised research illustrated in this article. We argue that employability is likely to remain a multidisciplinary object of study rather than become a truly interdisciplinary one, much less a transdisciplinary one, unless researchers venture beyond the boundaries of their academic disciplines, drawing on scholarship from other fields or collaborating in interdisciplinary research teams. In doing so, it is important to study employability at multiple levels, including both personal and contextual determinants, and with greater attention to the processes and pedagogies of employability development and expression (Akkermans *et al.*, 2024b; Akkermans *et al.*, 2023; Donald *et al.*, 2024a; Healy, 2023; Holmes, 2013).

Work and organisational psychology scholars, responding to Akkermans *et al.*'s (2024b) call for more attention to dynamic and contextual perspectives, may draw from the pedagogical and sociological themes identified in this study. For example, while Bourdieu's theories of habitus and social capital are considered as novel lenses for employability in career development scholarship (Akkermans *et al.*, 2024b; Delva *et al.*, 2021), they have long been applied to higher education employability research (Bui and Nghia, 2022; Holmes, 2013; Tomlinson, 2008). On the other hand, pedagogical researchers have much to learn from career development scholars about how traits such as adaptability, self-efficacy, and proactivity are developed and expressed (Healy *et al.*, 2022; Healy, 2023). Furthermore, researchers dealing with the topics of rehabilitation and barriers to employment have much to offer in support of Dollinger *et al.*'s (2024) call for a biopsychosocial view of employability which is more inclusive of disabled or otherwise disadvantaged people. Inter-disciplinary integration also extends to research methodology, as there is a need for more work combining both qualitative (e.g. narratives) and quantitative approaches (variable-centred and person-centred) in employability research.

Practical and policy implications

Universities face increasing financial pressures and unstable policy and market conditions, while the labour market that their graduates are entering is undergoing rapid transformation driven by automation and AI. Our topic correlation plot (Figure 1) underscores the potential for integrating diverse research streams to tackle these and many other challenges. By moving beyond dyadic links between research fields to examine constellations of interconnected topics, we may gain a clearer understanding of the interdependencies critical for fostering a sustainable career ecosystem (Donald *et al.*, 2024b).

Topics such as *graduate employability capabilities, training and skill development*, and *graduate employability pedagogies* take on greater significance when considered alongside *international education and mobility* through the lens of *policy and sociology*. Similarly, the topics of *worker employability, unemployment and insecurity* and *barriers to employment*, when considered together, provide more nuanced insights that can support the sustainable career success of all people. Moreover, insights from *unemployment and insecurity* and *barriers to employment* can directly inform *graduate employability pedagogies* and refine *training and skill development* to address structural inequalities and labour market shifts.

Promoting integration across these topics could begin to resolve the persistent fragmentation in employability research, enabling more equitable, evidence-based policies. Shifting from a narrow focus on the period of students' university study or the moment of labour market entry to a holistic, lifelong learning perspective, aligns employability strategies with the demands of evolving socio-economic contexts. This approach ultimately fosters career success for individuals across diverse populations and reinforces the foundations of a dynamic and inclusive career ecosystem.

Limitations

A large-scale mapping of scholarly literature, such as this one, has several limitations. Firstly, we included only journal articles indexed in Scopus and WoS and published in English. This excludes scholarship published in other languages and in other forms of scholarly communication, such as book chapters, reports, and whitepapers. Our focus on journal articles may diminish the voice of non-academic employability professionals, who are less likely to publish research in academic journals. Secondly, our analysis made no effort to evaluate the quality or relevance of research and treated all articles as equal. Finally, it should be noted that surveys of published scholarship are inherently historical and do not reflect current discourses and debates. As a result, past trends, such as the narrow focus on employability skills, may be more visible in our analysis than some more recent concepts, such as the broader and more holistic notion of employability capitals (Donald *et al.*, 2024a) or recent calls for more equitable and empowering conceptualisations of employability (Dollinger *et al.*, 2024; Healy, 2023).

Conclusion

The structural topic model described in this study, based on 7,591 records published between 1942 and February 2024, identified 11 distinct topics within the study of employability. These topics illustrate the diverse range of specialised expert knowledge across the employability literature. We are encouraged that the topic model points towards conceptual themes that signal potential for interdisciplinary collaboration and future integration of theories, methods, and empirical insights.

We advocate that future scholarly work on employability should take better advantage of the fundamental congruence between the different fields, focused as they are on the meaningful and sustainable career success for all people. Such research should foster the accumulation, validation, advancement, and utility of employability across categories of research subjects, education and training systems, occupational fields, and socio-cultural contexts. By pursuing more interdisciplinary research and applying transdisciplinary concepts more rigorously, the often-noted fragmentation and fuzziness in the employability literature will begin to be addressed.

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Supplementary material

The supplementary material for this article can be found online

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