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Reconceptualization and pedagogical strategies of public speaking competency for employability: an integrative review

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Abstract

Purpose – This study investigated the ineffectiveness of public speaking competence (PSC) in fostering employability. By analyzing the competency–training gap, it offers insights into vocational education and training (VET) concerning market-related generic skills.

Design/methodology/approach – An integrative review was conducted, qualitatively comparing 23 studies to identify themes, analyze gaps, synthesize recommendations and outline future research directions.

Findings – The employability framework of PSC was established, identifying generic skills for vocational diploma students as a developmental priority and graduate attributes for employability (GA-EM) – including career building, self-management and personal traits – as key intervention elements. The role of PSC as a generic skill was clarified through three core components related to GA-EM: (1) self-promotion in job-seeking through public expression, (2) objective self-awareness of disciplinary-specific skill acquisition during speech preparation and (3) mitigating excessive public self-consciousness in job interviews through speech confidence. These findings were re-conceptualized as public speaking competency tailored for employability (PSC-EM), with defined goals, intervention measures and target populations. The PSC-EM developmental gap in VET was refined, and a PSC-training pedagogical framework integrating PSC-EM implementation was proposed.

Research limitations/implications – Given the conceptual nature of PSC-EM, VET institutions should corroborate these findings through empirical research. Addressing equity and promoting self-directed learning in PSC training, especially in crowded classrooms in highly populated countries, requires further design-based research.

Originality/value – PSC-EM distinguishes PSC from oral communication, assigns it unique generic skill functions and enhances its status in VET. It introduces an innovative approach to employability cultivation, offering both a theoretical framework and a practical guide for VET stakeholders.

Keywords Public speaking competence (PSC), Employability skills, Vocational education and training (VET), Graduate attributes for employability (GA-EM), Competency-based training, Pedagogical framework

Paper type Literature review

1. Introduction

Globally, the COVID-19 pandemic has profoundly transformed higher education. Vocational diplomas are becoming increasingly competitive in the job market, often surpassing traditional degrees. In the United States, for instance, rising college costs (up 1.6%) and mounting student debt (USD 1.7 trillion) have led many families to question the value of a four-year degree. Only 16% of students believe such degrees effectively connect them to the job market, prompting a shift toward job-related training programs (Friedman, 2021; Ma and Pender, 2022; Parker

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et al., 2016, p. 78). Major multinational corporations including Google, Apple, IBM, and Ernst and Young, now prioritize vocational skills over academic degrees in recruitment (Bach, 2021; Bouchrika, 2021; Staley, 2017). This trend has created new opportunities for tertiary vocational institutions (TVIs), with short-term community colleges experiencing a surge in enrollment. Over the past decade, post-pandemic enrollment in US TVIs has increased by 16% (National Student Clearinghouse Research Center, 2023), while in China, it has risen by 180% (China Daily, 2022), reshaping perceptions of vocational education and training (VET) (Raby, 2021; Valeau and Raby, 2018).

However, despite TVIs' role in facilitating employment by equipping students with industry-relevant competencies, a critical issue persists: the neglect of generic skills training. For example, China, home to the world's largest VET system, does not mention generic skills in its recent vocational education laws (Ministry of Education of the People's Republic of China, 2022a; 2022b), reflecting a broader lack of attention to such skills in VET. Given that the core mission of VET is to prepare students for the labor market (European Union, 2023), it is imperative to challenge the misconception that generic skills are secondary. Instead, they must be reintegrated into VET curricula and aligned with job market demands to attract the attention of policymakers and administrators. The mismatch between generic skills and job requirements has troubled the global education community for two decades (Callan, 2003; Gibb, 2004; OECD, 2022).

Among these skills, public speaking competence (PSC) remains particularly underdeveloped in VET. Employers increasingly value practical communication abilities, such as presentation skills, over GPA (Coffelt *et al*., 2019; Gray, 2022; Tajuddin *et al*., 2022), highlighting PSC's importance in career development (Carlton, 2021). Surveys indicate that while 70% of professionals recognize the importance of presentation skills for career success (Gallo, 2014), 39% of employers report that new graduates lack them (Strauss, 2016). In VET, PSC is often treated as an auxiliary learning tool rather than a core competency. Common approaches—such as work-integrated learning programs, generic courses, and discipline-specific classrooms—assume that students will acquire PSC informally, resulting in a lack of structured development (Albert and Davia, 2023; Saari, 2013; Scott *et al*., 2017). However, research demonstrates that students' public speaking anxiety (PSA) spikes significantly near graduation due to job-seeking pressures (Dwyer and Davidson, 2012, 2021; Dwyer and Fus, 2002; Ibrahim and Devesh, 2019). This indicates that while PSC is in high demand, it is not effectively cultivated in TVIs.

Against this backdrop, this study focused on two objectives. First, we developed a Public Speaking Competency for Employability (PSC-EM) to better align PSC education in VET with evolving job market demands. Currently, there is no clear developmental path for PSC, and definitions of graduate employability remain diverse and inconsistent (Neroorkar, 2022; Sánchez-Queija *et al*., 2023; Suleman, 2018, p. 13). Additionally, PSC is often considered merely a subset of oral communication skills (Baccarani and Bonfanti, 2015; Meade, 2021; Tucker *et al*., 2019), leading to its neglect as a distinct generic skill. To address this gap, this study synthesizes and compares relevant research perspectives, integrating them into a structured employability framework. Additionally, the study consolidates findings on PSC's role in employability to establish a theoretical foundation for its transformation into PSC-EM. Finally, the study contextualizes PSC-EM within real-world VET developments, identifies areas requiring further effort, and transitions from theoretical exploration to practical applications.

Second, the study constructs a holistic pedagogical framework for PSC training, integrating key PSC-EM components to enhance its practical relevance in VET. By synthesizing existing research, the study proposes a pedagogical strategy tailored to local VET contexts, providing instructional guidance to VET stakeholders and ensuring the feasibility of PSC-EM implementation.

2. Methodology

This study examines various sources to explore the complex relationship between PSC and employability, delving beyond the linear "A affects B" models commonly validated in meta-analyses (Cronin and George, 2023, p. 8). Using an integrative review approach, we review, evaluate, and synthesize relevant literature to generate new insights (Torraco, 2005, p. 356) and develop a PSC training theory that aligns more closely with labor market demands. Following Whittemore and Knafl (2005), our review proceeds through five key steps.

2.1 Problem identification

The research questions (RQs) were formulated based on the study's two objectives. The first objective corresponds to RQs 1–3, while the second objective aligns with RQ4.

RQ1. How does the literature define employability components across different educational levels (focused on higher education), majors, and stakeholder perspectives? What cognitive gaps exist regarding employability?

RQ2. What are the characteristics of PSC-related terms in the literature? What functions does PSC serve as a generic skill? How do these functions connect to the employability framework in RQ1? How can PSC-EM be conceptualized?

RQ3. What developmental patterns of PSC in VET are reported in the literature? What are the limitations of these patterns? What further efforts are needed for PSC-EM development?

RQ4. What categories of teaching strategies for PSC training are discussed in the literature? What core components do they share? How can PSC training techniques be refined for each component to integrate PSC-EM development into a comprehensive strategy?

2.2 Literature search

Our interdisciplinary team comprised five researchers (ZXJ, MHMP, HAJ, GZD, and WW), specializing in Vocational Education, Language Education, Human Resources, Curriculum and Instruction, and Interdisciplinary Teaching. This study, focusing on public speaking and employability, reviewed literature published between 2012 and 2022 using databases such as Google Scholar, SCOPUS, ERIC, and Emerald to ensure the timeliness and relevance of the selected works.

Given that integrative reviews explore research phenomena more broadly than systematic reviews, this study includes both methodological and theoretical literature. Instead of applying the commonly used the SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) tool in systematic reviews (Cooke *et al.*, 2012), we based our selection on literature inclusion/exclusion criteria and research relevance (Toronto and Remington, 2020, p. 2). Specifically, studies featuring "public speaking" in their titles, abstracts, or keywords were prioritized, along with those explicitly identifying it as a key finding. Finally, all selected studies underwent a unified quality assessment and team consensus before inclusion in the analysis.

The search and screening process, illustrated in Figure 1, follows the PRISMA flow diagram and includes detailed search string information. In line with Lawless and Foster's (2020, p. 42) "screening, selecting, and sorting" approach, the literature screening process comprised three rounds.

(1) First round: ZXJ, GZD, and WW independently conducted an initial screening based on search criteria and removed duplicates using Zotero. They then reviewed full texts to verify the presence of the search terms, excluding articles where these terms appeared only in the references. This process resulted in 91 articles.

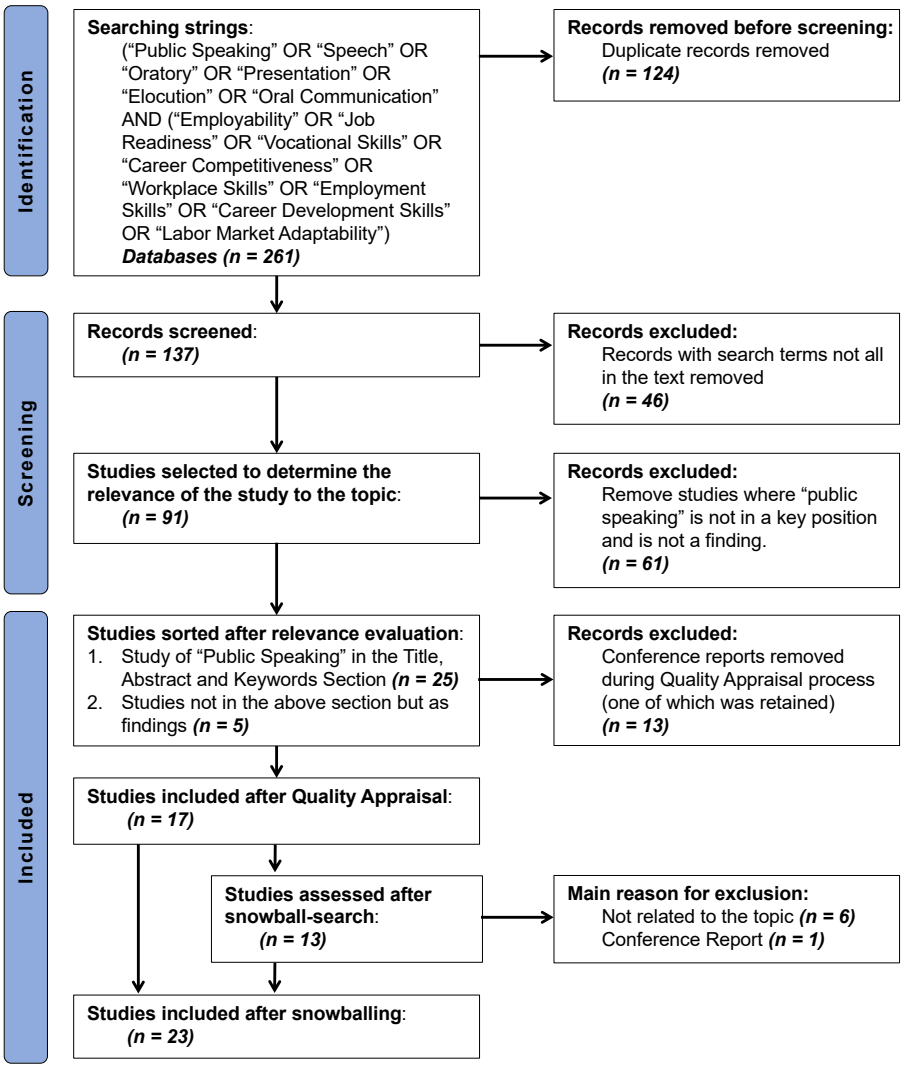

Figure 1. Summary of literature search, adapted from PRISMA. Source: Adapted from Page *et al*. (2021)

(2) Second round: Full-text screening identified 25 highly relevant articles containing public speaking in key positions. The remaining 66 articles were further assessed by MHMP and HAJ for primary findings, leading to 61 exclusions.

(3) Third round: A quality appraisal was conducted by all researchers, leading to the exclusion of 13 conference papers. Using snowballing techniques (Greenhalgh and Peacock, 2005), ZXJ and GZD identified 13 articles, of which 6 were finalized after review by MHMP, HAJ, and WW.

Ultimately, 23 articles were selected for inclusion in this study.

2.3 Quality appraisal

Literature screening and quality appraisal were conducted concurrently using the Critical Appraisal Skills Programme (n.d.), a core tool for assessing article quality in integrative reviews (Toronto and Remington, 2020, p. 48). In total, 14 of the lowest-ranked conference papers were excluded. However, the study by Osma *et al*. (2017) was retained due to its comprehensive methodology section, which met the inclusion criteria set by ZXJ and GZD and was further reviewed by MHMP, HAJ, and WW.

2.4 Data analysis

This study employed qualitative content analysis, structured into two stages (Elsbach and Knippenberg, 2020; Torraco, 2016b).

2.4.1 Stage 1: constant comparison. This stage involved an in-depth analysis of the literature related to each RQ, focused on identifying key themes, examining existing consensus, uncovering potential research gaps, and extracting essential content.

2.4.2 Stage 2: synthesis. First level: This level focused on synthesizing findings for each RQ, specifically addressing research gaps across different themes.

Second level: This level involved an iterative analysis of all RQ findings, leading to the development of a new theoretical framework and operational guidelines. This process aimed to clarify future research directions and contribute to both theoretical advancements and practical applications.

2.5 Presentation

2.5.1 Literature search results. To facilitate comprehension, Table 1 provides an overview of the selected literature, summarizing the connection between PSC and employability. This enables readers to quickly grasp the key insights from the reviewed studies.

2.5.2 Data analysis. The Results and Discussion section is structured around each RQ, following a systematic format: Thematic Analysis—Discussion on Research Gaps—Recommendations. The constant comparative method was applied to the first two sub-sections, while the first-level synthesis process was used for the final one. Specifically, the analysis consists of:

(1) Thematic analysis: A review of relevant literature to highlight existing consensus and research gaps.

(2) Discussion on research gaps: An exploration of the identified gaps, analyzing underlying causes and influencing factors through theoretical and empirical evidence.

(3) Recommendations: A synthesis of the first two parts, proposing a systematic approach to address each RQ.

Since the RQs were iteratively developed, the findings of each RQ were incorporated into subsequent sections to facilitate in-depth exploration and progressive knowledge development.

2.5.3 Conclusion and future directions. The second-level synthesis is presented in the Conclusion section, integrating the results from all RQs to provide a macro-level perspective on future directions. This section also elaborates on the study's significance and broader research value. Additionally, readability and conceptual clarity can be further enhanced through a visual model (Hopia *et al*., 2016; Russell, 2005; Torraco, 2016a).

3. Results and discussion

3.1 RQ1

RQ 1 explores how the PSC-related literature conceptualizes employability and identifies the most appropriate framework. We examine three perspectives— educational level, major, and stakeholders—while summarizing themes, analyzing gaps, and offering recommendations.

Table 1. Summary of selected literature

Author (Year)	Title	Viewpoint
Balakrishnan *et al*. (2022)	Glossophobia among engineering learners: A case study at a technical university	PSA affects job acquisition, while PSC enhances employability for diploma graduates
Bolton-King (2022)	Student mentoring to enhance graduates' employability potential	The Student Mentor Program in Forensics and Policing is a work-integrated learning initiative that helps students develop industry-relevant skills, including PSC, by having senior students mentor their juniors
Jindal (2022)	Role of English language lab in shaping and enhancing the employability skills of the technocrats and professionals: A challenge or a chance	To improve communication skills, especially for workplace scenarios such as job interviews, diploma students at technical institutes benefit from course materials designed for presentation skills. These materials are quickly shared via a digital language lab
Sokhanvar *et al*. (2021)	Advantages of authentic assessment for improving the learning experience and employability skills of higher education students: A systematic literature review	"Authentic assessment" engages both bachelor's and diploma students in real-world workplace tasks, with presentations serving as essential tools to integrate vocational or technical theory into practice
Collinson and Wiliam (2021)	Employing history: Enhancing 'employability' in BA history degrees with recorded video presentation assessments	The integration of presentation and digital literacy within an Online Educational Resources program enhances alignment with the heritage industry
Grieve *et al*. (2021)	Student fears of oral presentations and public speaking in higher education: A qualitative survey	Since PSA adversely affects higher education and employment, it is crucial to provide adequate training in topic understanding, presentation preparation, and practice while fostering a supportive learning environment
Alkooheji and Al-Hattami (2021)	University graduates' perception about the effect of EFL speaking skills on employability	The impact of PSC on graduates' success in job interviews, as well as the extent to which their training prepared them for employment, warrants further examination
Singh and Harun (2020)	Industrial trainee's learning experiences of English-related tasks at the workplace	To enhance communication effectiveness during industry training, diploma students should take a targeted PSC course before their internships
Alzuoud and Gaudel (2020)	The role of core skills development through English language teaching (ELT) in increasing the employability of students in the Saudi labor market	Language teaching activities should incorporate core employability skills, including classroom management, structured pairing and group work, and technology-assisted presentation modeling
Ibrahim and Devesh (2019)	Implication of public speaking anxiety on the employability of Omani graduates	The graduation year often witnesses a resurgence of PSA, which significantly affects diploma students' performance, career choices, and employability. As a result, vocational institutions should implement early intervention and training opportunities, particularly focusing on Arabic oratory
Saleh *et al*. (2019)	Development of communication competency for civil engineering students	Oral presentations are among the most critical factors influencing students' career development, equipping them with the necessary skills for the workplace

(*continued*)

Table 1. Continued

Author (Year)	Title	Viewpoint
Davis *et al*. (2019)	International experiences to increase employability for education doctoral students. A comparative study	For PhD candidates, report speech plays a key role in the clarity of research presentation, requiring preparation, a clear focus, public speaking skills, and strategies to overcome anxiety. Constructive feedback enhances research skills, professional communication, and international engagement
Zainuddin *et al*. (2019)	English language and graduate employability	Employers have expressed dissatisfaction with graduates' reliance on non-standard colloquial forms in Malay and Mandarin. To address this, programs should enhance written communication, PSC, industry-specific background knowledge, and confidence-building training
Räty *et al*. (2018)	University student's perceptions of their "ability selves" and Employability: A pilot study	Optimism regarding PSC positively correlates with social adaptability, outward orientation, and entrepreneurial skills. In contrast, those with a negative perception of public speaking tend to feel pessimistic about their job prospects
Bacon (2018)	Teaching applied politics: From employability to political imaginary	As a pedagogical tool, presentations in the "Practice of Politics" module integrate extramural political experiences into classroom learning, ensuring a balance between academic rigor and practical application in political science
Sedlan-König *et al*. (2018)	Graduates are from Venus; employers are from Mars: A Croatian study on employability	Graduates highly value PSC, and employers prioritize graduates with strong communication skills. Institutions should therefore integrate competencies relevant to employability into their curricula
Osma *et al*. (2017)	Training, practice, and assessment of student's public speaking competence in the General Health Psychology Master	Oral skills are among the most essential generic skills, facilitating disciplinary and industry integration while contributing to professional development
Easterly *et al*. (2017)	Skills students need in the real world: Competencies desired by agricultural and natural resources industry leaders	PSC is recognized as a fundamental communication skill, alongside crisis management and strong writing abilities, both of which are crucial for navigating industry challenges and enhancing professional competence
Clokie and Fourie (2016)	Graduate employability and communication competence: Are undergraduates taught relevant skills?	Local employers across various industries highly value native communication skills when hiring new graduates, especially those who demonstrate industry-specific communication proficiency through coursework
Mousawa and Elyas (2015)	Presentation as employability soft skill to ESP learners in the English language institute at King Abdulaziz University	Presentation skills, encompassing both verbal and visual expression, serve as vital communication tools for effectively conveying ideas in numerous professions

(*continued*)

Table 1. Continued

Author (Year)	Title	Viewpoint
Deeley (2014)	Summative co-assessment: A deep learning approach to enhancing employability skills and attributes	The incorporation of oral presentations in collaborative assessment as a service-learning pedagogy significantly enhances employability and self-confidence, particularly among public policy majors
Jackson (2014)	Business graduate performance in oral communication skills and strategies for improvement	While graduates prioritize verbal communication, PSC must align with industry expectations, requiring mastery of delivery techniques, persuasive articulation, and diverse presentation formats. Evaluations should be discipline-specific to ensure relevance
Rigg (2013)	Embedding employability in assessment: Searching for the balance between academic learning and skills development in law: A case study	Embedding presentations within law degree programs enhances employability by linking oral assessments to real-life legal scenarios, thereby preparing students for job interviews and professional practice

Source(s): Created by authors

3.1.1 Thematic Analysis. 3.1.1.1 Theme 1.1: educational level. Most research has focused on the employability development of undergraduate students (e.g. Bolton-King, 2022; Clokie and Fourie, 2016; Collinson and Wiliam, 2021; Rigg, 2013; Sedlan-König *et al*., 2018). In contrast, few studies have examined vocational diploma students (e.g. Balakrishnan *et al*., 2022; Jindal, 2022; Sokhanvar *et al*., 2021), despite their inclusion in higher education through training at TVIs.

3.1.1.2 Theme 1.2: majors. Relevant studies cover fields such as science (e.g. Balakrishnan *et al*., 2022; Saleh *et al*., 2019), social sciences (e.g. Bolton-King, 2022; Collinson and Wiliam, 2021), English (e.g. Alkooheji and Al-Hattami, 2021; Singh and Harun, 2020), and interdisciplinary studies (e.g. Ibrahim and Devesh, 2019; Jindal, 2022). These studies highlight the significance of generic skills in linking discipline-specific knowledge to practical applications. Generic skills are primarily fostered through project-based learning, internships, general (communication) courses, and studio or laboratory environments, enhancing students' competitiveness in the job market.

As shown in Figure 2, project-based learning in agricultural leadership (Easterly *et al*., 2017) and applied political science (Bacon, 2018) enables students to apply theoretical concepts, improving learning efficacy. Internships, such as English-related workplace learning tasks (Singh and Harun, 2020), contribute to students' work performance. General courses tailored to the labor market focus on cultivating job-seeking skills (Alzuoud and Gaudel, 2020) and workplace adaptability (Clokie and Fourie, 2016). Studio and laboratory environments simulate real-world work settings, as seen in the Student Mentor project for forensic and policing majors (Bolton-King, 2022), Heritage Presentation Online Resources for history majors (Collinson and Wiliam, 2021), and Service-Learning projects for public policy majors (Deeley, 2014). These initiatives prepare students for employment by enhancing their practical skills. However, while general (communication) courses explicitly develop generic skills, other approaches emphasize their application, highlighting gaps in educational interventions for generic skill development.

3.1.1.3 Theme 1.3: stakeholders' perspectives. Key stakeholders include students (primarily graduates), employers, and educators, each with differing views on generic skills. This discrepancy often stems from the distinction between hard and soft skills. Most studies (e.g. Alkooheji and Al-Hattami, 2021; Collinson and Wiliam, 2021) classify generic

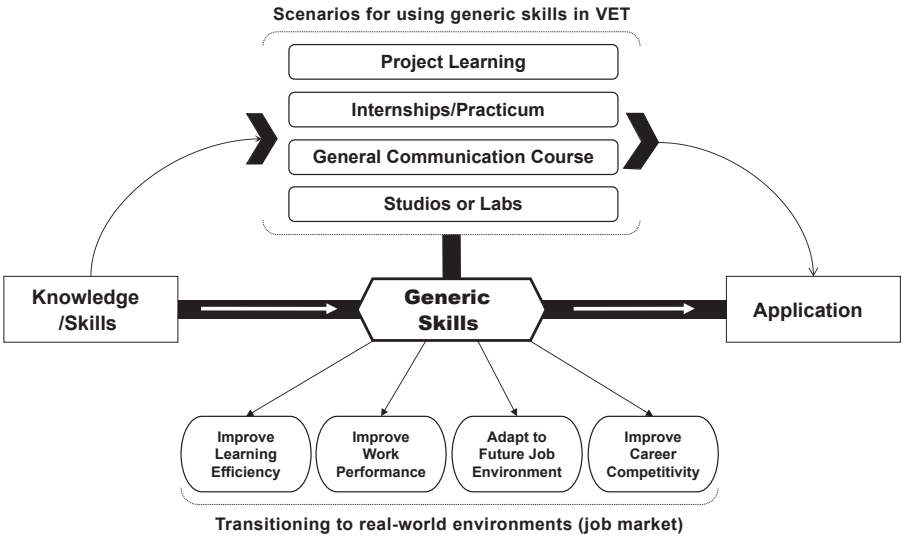

Figure 2. Role of generic skills across majors. Source: Created by authors

skills as measurable abilities or "hard skills." However, the misalignment between employability training in educational institutions and industry expectations persists. For instance, PSC, which is highly valued in the job market, is often treated as a component of broader communication skills in higher education rather than as a distinct skill (e.g. Bolton-King, 2022; Jindal, 2022).

Soft skills, such as anxiety management, confidence, self-analysis, social adaptability, and extroversion (e.g. Davis *et al*., 2019; Deeley, 2014) are rarely addressed in the literature. These skills are not typically acquired through formal education but are considered inherent personal attributes (Robles, 2012). Although intangible and challenging to measure, they significantly influence the effectiveness of generic skills and job-search outcomes. For example, oral self-affirmation and PSA have been shown to impact job-seeking success (e.g. Balakrishnan *et al*., 2022; Grieve *et al*., 2021).

3.1.2 Discussion on research gaps. 3.1.2.1 Theme 1.1. While substantial research has focused on students with undergraduate or higher degrees, those pursuing vocational diplomas warrant equal consideration. The prioritization of four-year degrees in higher education is influenced by factors such as education systems, labor market dynamics, and the perceived quality of vocational education. Although the earning potential of associate degrees is rising, they are often viewed as a stepping stone to a bachelor's degree. Diploma graduates face limited employment opportunities and lower remuneration, as employers tend to favor candidates with bachelor's degrees (Carnevale *et al*., 2017; Jepsen *et al*., 2014). In East Asian countries such as Japan and China, "credentialism" has historically devalued diploma education compared to bachelor's degree programs. However, these nations are increasingly recognizing the importance of strengthening VET (Liang and Chen, 2014; OECD, 2021; Yoshimoto, 2018).

Vocational diplomas, positioned between postsecondary and higher education, are awarded by TVIs. Despite their shorter duration, research and reports suggest that TVIs can effectively enhance students' employability at a lower cost through vocational training and industry-aligned applied knowledge transfer. Consequently, VET is gaining recognition from both industry and students (European Union, 2023; Gupta, 2013; LaForest, 2023; Malkus, 2019). For instance, China, which has the world's largest vocational education system, recently

revised its Vocational Education Law to elevate the status of VET and promote industry-education integration in specific disciplines. However, the role of generic skills remains largely unaddressed (Ministry of Education of the People's Republic of China, 2022a; 2022b).

In conclusion, while research on students with vocational diplomas remains relatively limited, their role in higher education and the labor market is becoming increasingly significant. Future studies should focus on this demographic to bridge existing research gaps.

3.1.2.2 Theme 1.2. There is broad consensus in the literature on the role of generic skills in specific disciplines, particularly in facilitating the transformation of theoretical knowledge into practical application. However, research has rarely focused on the explicit development of these skills, often assuming that students already possess them.

The T-shaped talent model provides a theoretical framework that highlights the importance of generic skills in VET (Madhavan and Grover, 1998; Martin and Rees, 2019; Oskam, 2009). This model illustrates the complementary relationship between generic and discipline-specific skills (see the left side of Figure 3). The horizontal dimension of generic skills strengthens the vertical dimension of discipline-specific expertise by deepening understanding, enhancing job adaptability, promoting interdisciplinary collaboration, and increasing industry recognition (Bierema, 2019; Demirkan and Spohrer, 2018; Hamdi *et al*., 2016).

However, this model focuses solely on the utilization of generic skills rather than their development (Ninan *et al*., 2022, p. 7). This highlights a gap in past theories and existing literature regarding generic skills. We propose modifying the T-shaped talent structure (see the right-hand side of Figure 3) by reversing the horizontal and vertical components. The vertical component should emphasize cultivating core generic skills and integrating them into VET (Karjalainen *et al*., 2009; Uhlenbrook and Jong, 2012), while the horizontal component should illustrate how generic skills enhance knowledge application.

The modified T-shaped talent model may be particularly relevant for TVI students, as discussed in Theme 1.1, since they often lack an environment conducive to developing generic skills while specializing in discipline-specific training (Conley *et al*., 2017). However, implementing this model presents two challenges: selecting representative skills from the broad category of generic skills (Vriesman *et al*., 2023) and ensuring their development aligns with the employment needs of graduates across various disciplines.

In conclusion, research on generic skill development remains limited. The improved T-shaped talent model offers a potential solution, but its implementation challenges necessitate further study.

3.1.2.3 Theme 1.3. Examining this theme may help address the developmental challenges outlined in Theme 1.2. This theme investigates how different stakeholders perceive generic skills. While some studies categorize generic skills as hard skills—emphasizing communication as a key employment-enhancing skill—others distinguish between PSC and oral communication. Generic skills are also viewed as soft skills that encompass psychological attributes.

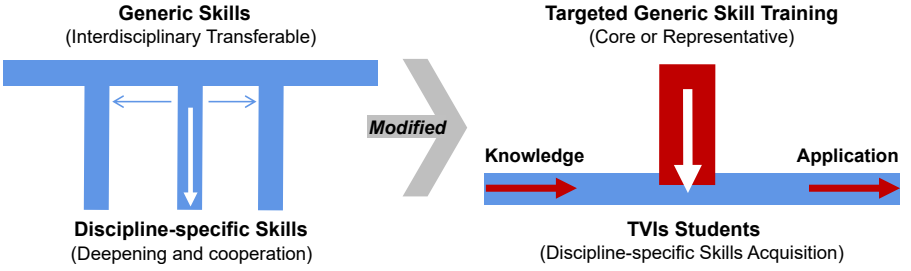

Figure 3. Modified *T*-talent model for TVI students. Source: Adapted from Oskam (2009)

To address these gaps, we propose incorporating an employability framework that explicitly integrates generic skill development. This framework should encompass:

(1) T-shaped talents that merge generic and discipline-specific skills,

(2) Elements that enhance employment readiness, and

(3) Positive psychological attributes that contribute to professional success.

Based on these criteria, we recommend adopting the "Graduate Attributes of Employability" (GA-EM) framework proposed by Bridgstock (2009) (see Figure 4).

The GA-EM framework prepares graduates for the job market by integrating foundational traits, career management skills (self-management and career-building), generic skills, and discipline-specific expertise. Bridgstock (2009) posited that the framework's ultimate goal should be Job-Search Self-Efficacy (JS-SE) (Saks and Ashforth, 1999), which Saks *et al.* (2015) define as the confidence to predict one's job search behaviors and outcomes.

Integrating the GA-EM into generic skills development is feasible for several reasons:

(1) Previous research has explored restructuring GA-EM to include generic skills (Aliu and Aigbavboa, 2021; Green *et al*., 2009).

(2) Römgens *et al*. (2019) found that GA-EM facilitates interdisciplinary capabilities.

(3) This approach aligns with the concept of utilizing "input" functional competencies and traits to enhance perceived employability (Vanhercke *et al*., 2014).

Identifying the most relevant generic skills within the GA-EM framework is crucial for ensuring its effective implementation.

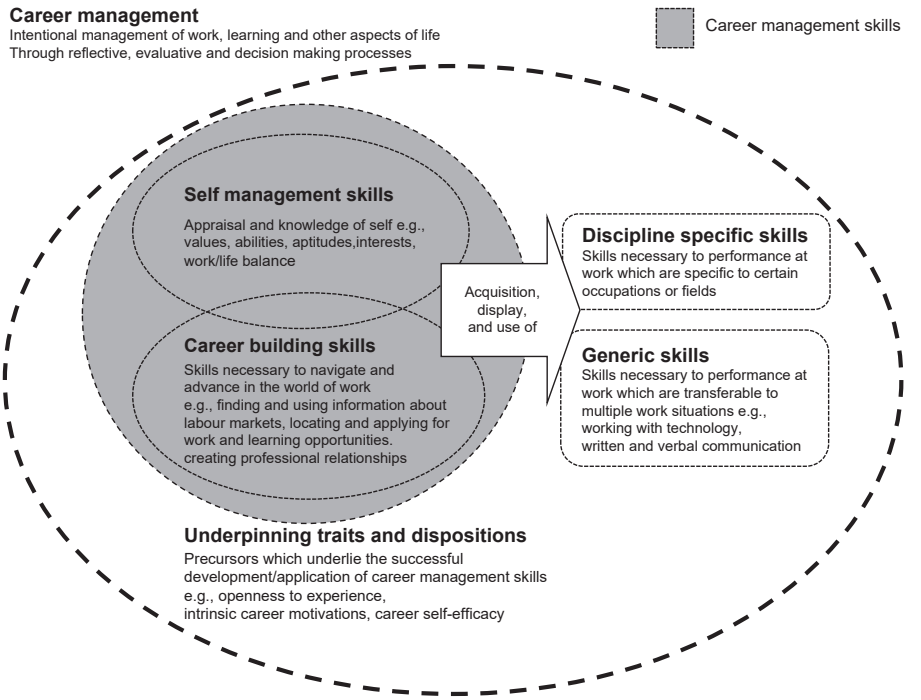

Figure 4. Graduate attributes for employability (GA-EM) model. Source: Bridgstock (2009)

Moreover, GA-EM can contribute to advancing employability research. As effective methods for developing job readiness remain a topic of debate, GA-EM presents a viable alternative (Winterton and Turner, 2019). However, to enhance its recognition, empirical validation through real-world applications is necessary (Bridgstock *et al*., 2019). While existing research primarily focuses on the framework's comprehensiveness and structural complexity (Clarke, 2018; Tomlinson, 2017), its Implementation in educational institutions may require incorporating its components into separate courses, thereby increasing developmental costs. Conversely, embedding GA-EM components within generic skills training could streamline development, promote job readiness, and improve efficiency.

In summary, GA-EM was identified as the most suitable employability framework in the selected literature. However, it remains necessary to determine whether PSC can be integrated into GA-EM. If adaptable, PSC will be incorporated into each element of GA-EM as a core generic skill to develop overall development.

3.1.3 Recommendations. Based on these findings, the scope of RQ 1's application can be expanded. As emphasized in Themes 1.1 and 1.2, the development of generic skills should be a key focus for TVI students. The cultivation approach follows the GA-EM framework introduced in Theme 1.3, which integrates career management skills and fundamental traits. We recommend developing structured plans to enhance generic skills, aiming to shape graduates into T-shaped talents that align with labor market demands. Moreover, GA-EM has been identified as a suitable employability framework for PSC. Further exploration is needed to assess the compatibility between PSC and this framework.

3.2 RQ2

The GA-EM framework identified in RQ1 was correlated with themes refined from this RQ to bridge the conceptual gap between PSC and employability. First, we summarized the functions of PSC as a generic skill and identified key themes. We then examined how these themes promote employment and explained their theoretical links to GA-EM components. Once a connection is established, we propose a new conceptualization of PSC tailored for employability, outlining its developmental goals, interventions, and target populations.

3.2.1 Thematic analysis. The literature uses various terms interchangeably with PSC, including speech and speaking (Alkooheji and Al-Hattami, 2021), public expression (Davis *et al*., 2019), demonstration skills (Jackson, 2014), oratory skills (Ibrahim and Devesh, 2019), oral reports (Saleh *et al*., 2019), and public confidence (Zainuddin *et al*., 2019). Among these, "presentation" is widely used to describe PSC, emphasizing the organized and compelling delivery of information. Hillage and Pollard (1998) incorporated "presentation" into their definition of employability, describing it as an "asset"—comprising knowledge, skills, and attitudes—that individuals demonstrate to align themselves with employment opportunities.

By analyzing these terms, we identified three key features of PSC: (1) proficient public expression for effective information delivery, (2) sustaining adequate confidence when addressing an audience, minimizing PSA that may hinder speech, and (3) preparatory work to structure and refine presentation content.

Based on these characteristics, we refined three themes, each closely linked to the role of PSC as a generic skill.

3.2.1.1 Theme 2.1: promoting job-seeking self-promotion through public expression. The literature emphasizes the significance of public expression in job-seeking, highlighting the need for effective communication techniques. Alkooheji and Al-Hattami (2021) argued that PSC provides a platform for job seekers to demonstrate their personal achievements, enhancing their employability. Similarly, Balakrishnan *et al*. (2022) and Saleh *et al*. (2019) underscored the value of technical proficiency in presentations, particularly for engineering students demonstrating their expertise to potential employers. Davis *et al*. (2019) found that PSC helps doctoral students articulate complex research concepts. Additionally, Clokie and Fourie (2016) and Mousawa and Elyas (2015) emphasized the importance of integrating oral and visual elements into presentations, which is crucial for employees in professional settings.

In conclusion, job-seeking self-promotion through public expression is a key function of PSC as a generic skill, particularly in interviews, where it helps candidates create a favorable impression on recruiters (Knight *et al*., 2023). This function aligns closely with the career-building component of the GA-EM framework, establishing a foundation for further exploration of the internal connection between PSC and GA-EM.

3.2.1.2 Theme 2.2: forming accurate self-knowledge of discipline-specific skill acquisition through speech preparation. Grieve *et al*. (2021) and Davis *et al*. (2019) posited that a successful presentation necessitates a thorough understanding and meticulous preparation of the subject matter. Bacon (2018) and Osma *et al*. (2017) underscored the role of field experience and subsequent classroom presentations in acquiring knowledge in political science and psychology. Easterly *et al*. (2017) elucidated PSC's role in enhancing comprehension and responses to agricultural challenges, while Rigg (2013) emphasized its contribution to improving legal knowledge accuracy and job interview performance. Collinson and Wiliam (2021) explored online history showcases, and Saleh *et al*. (2019) examined the integration of technical report writing with industry experience in civil engineering. These studies suggest that preparation facilitates the organic synthesis of disciplinary knowledge and industry practice.

Therefore, PSC helps students accurately assess their mastery of discipline-specific skills, leading to a more comprehensive and objective evaluation as they progress through speech preparation. This effect potentially correlates with the self-management component of the GA-EM framework, providing a direction for future research.

3.2.1.3 Theme 2.3: cultivating a positive job-seeking mindset through speech confidence (or reducing PSA). Speech confidence is categorized as a "personal trait" and a key element of generic skills in Theme 1.3. Grieve *et al*. (2021) argued that overcoming the fear of public speaking fosters confidence and positive personality traits. Ibrahim and Devesh (2019) suggested that this ability alleviates interview anxiety and fosters optimism in career decision-making. Balakrishnan *et al*. (2022) and Räty *et al*. (2018) demonstrated that this intrinsic capacity reinforces positive job-seeking behaviors, clarifies career aspirations, and helps establish rapport with employers.

Thus, developing a positive job-seeking attitude through speech confidence is a significant contribution of PSC to employability. This function aligns with the basic traits and disposition components of the GA-EM framework, offering insights into the relationship between PSC and GA-EM.

3.2.2 Discussion on research gaps. The conceptual connections between the identified themes and GA-EM components remain underexplored, warranting further investigation.

3.2.2.1 Theme 2.1: PSC's job-seeking self-promotion and GA-EM's career-building. Career-building skills encompass exploring job opportunities, demonstrating competencies to employers, and establishing connections with key figures to secure career advancement (Bridgstock, 2009). Self-promotion is a critical strategy for attracting the attention of recruiters and interviewers. Some theorists have proposed that job interviews function as platforms for self-marketing (Chen *et al*., 2023; King, 2001, 2004). This study suggests that PSC enhances career-building skills by fostering public expression.

In summary, while PSC's job-seeking self-promotion function is closely related to GA-EM's career-building component, the conceptual connection requires further clarification.

3.2.2.2 Theme 2.2: PSC's accurate self-knowledge and GA-EM's self-management. Self-management involves identifying, evaluating, and understanding one's values, abilities, aspirations, and goals (Bridgstock, 2009). Duval and Wicklund's (1972) objective self-awareness theory posits that greater self-knowledge facilitates more objective self-management. Enhancing this ability is contingent on self-assessment, with comparative self-appraisals before and after interventions improving objectivity and highlighting areas for growth (Fletcher and Bailey, 2003; Vogt and Colvin, 2005). Preparing presentations requires individuals to critically evaluate content accuracy, fostering deeper disciplinary and industry knowledge. This, in turn, influences job-seeking self-management.

Notably, self-management and career-building skills are integral to career management as defined by GA-EM (Bridgstock, 2009). To further investigate the effectiveness of PSC in career management, Ellis's (1995) Self-Perceived Public Speaking Competence (SPPSC) scale is introduced for assessing presentation performance in job-seeking contexts. Two key considerations must be addressed:

(1) Target population: TVI graduates, whose curricula emphasize specialized disciplinary skills and rapid employment, are more likely to exhibit job-seeking behaviors related to self-management and career-building.

(2) Assessment objectivity: Multiple evaluation methods should be employed to mitigate potential biases, including overconfidence or excessive self-criticism.

Therefore, while a connection exists between PSC and GA-EM's self-management component, selecting appropriate evaluation methods for specific groups is essential, and maintaining objectivity throughout the assessment process is crucial.

3.2.2.3 Theme 2.3: suppressing PSA (i.e. excessive public self-consciousness) and its underlying traits and dispositions in GA-EM. Traits such as confidence, self-efficacy, and initiative constitute the foundation of GA-EM's career management skills (Bridgstock, 2009), and speech confidence reinforces these traits. However, these attributes are susceptible to the negative effects of excessive public self-consciousness—a psychological state characterized by an undue concern with others' perceptions, resulting in feedback avoidance and fear of public criticism. This tendency is particularly evident in PSA (Bippus and Daly, 1999; Daly *et al*., 1989; Snowden and Lond, 1939) and has been linked to negative workplace behaviors (Chiaburu *et al*., 2006).

Arnold (2018, p. 76) found that reducing PSA not only improves speech-related activities but also enhances comfort during job interviews. Strengthening positive personality traits can augment self-efficacy and job-seeking confidence, thereby improving employment success rates (Pool and John, 2007; Pool and Qualter, 2013). Consequently, assessing and mitigating PSA is a prerequisite for fostering traits essential to job seeking. The Personal Report of Public Speaking Anxiety (PRPSA) scale provides a useful tool for this purpose (Gallego *et al*., 2022; McCroskey and McCroskey, 1988).

In conclusion, suppressing PSA is important for cultivating positive traits in GA-EM. However, further research and practical applications are needed to effectively assess and reduce PSA levels.

3.2.2.4 Extension of theme 2: can PSC achieve GA-EM's job-search self-efficacy (JS-SE) goal?. The goals of GA-EM must align with PSC development require alignment to ensure positive job-seeking behaviors and mindsets, which are predictive of employment success (Bridgstock, 2009). Saks *et al*. (2015) developed the Job-Search Self-Efficacy (JS-SE) scale, which links job-seeking confidence to employment outcomes, raising the question of whether PSC, as a generic skill, influences employability.

Indirect evidence suggests that a combination of professional competence and the right disposition enhances graduate recruitment decisions, emphasizing the role of human capital (Jackson *et al*., 2022). Ng *et al*. (2022) argue that human capital includes communication competencies that positively influence perceived employability during work-integrated learning under career self-management. Alawamleh and Mahadin (2022) further indicate that employment success is associated with social intelligence, career readiness, and emotional expression. These findings underscore the importance of communication skills and GA-EM elements in employment outcomes, consistent with the fact that employability curricula are heavily focused on communication (Gregorio *et al*., 2019; Succi and Canovi, 2019; Tajuddin *et al*., 2022).

However, Leath (2019) found that general communication courses do not significantly enhance employability. Given the theoretical link between PSC and GA-EM, this contradiction suggests that the emphasis should shift from general communication skills to

PSC-specific training (Fasano, 2014, p. 80). We propose integrating GA-EM elements into targeted PSC training to assess its impact on JS-SE. We hypothesize that PSC training will positively influence JS-SE and, consequently, employability. If confirmed, this would provide a practical solution to the perceived ineffectiveness of PSC in the job market and offer an applied framework for GA-EM through a specific generic skill.

In conclusion, while a theoretical connection exists between PSC and GA-EM's JS-SE development goal, direct evidence of the effectiveness of PSC training in enhancing JS-SE remains lacking. Urgent empirical research is needed to validate this relationship.

3.2.3 Recommendations. Figure 5 delineates the key themes and establishes a clear theoretical connection with the GA-EM model, providing a foundation for PSC reconceptualization and future applications in employability.

This section builds on the discussion of RQ1, exploring the compatibility between PSC development and the employability framework of GA-EM. The characteristics of PSC—public expression, speech preparation, and speech confidence— were extracted from the literature. Three core themes were identified in relation to PSC as a generic skill: Theme 2.1. Job-seeking self-promotion, Theme 2.2. Accurate self-knowledge of disciplinary skills acquisition, and Theme 2.3. Positive job-seeking attitude.

Theoretical connections between these themes and GA-EM were established: Theme 2.1. Facilitating job-seeking self-promotion through PSC-based public expression to support career building, Theme 2.2. Enhancing objective self-awareness through PSC-based speech preparation to foster self-management, and Theme 2.3. Mitigating excessive public self-consciousness through PSC-based speech confidence to cultivate positive traits and dispositions.

Additionally, the potential of PSC to achieve the GA-EM's JS-SE goal was explored, leading to hypotheses that emphasize the necessity of pre-testing PSC and PSA learning effectiveness.

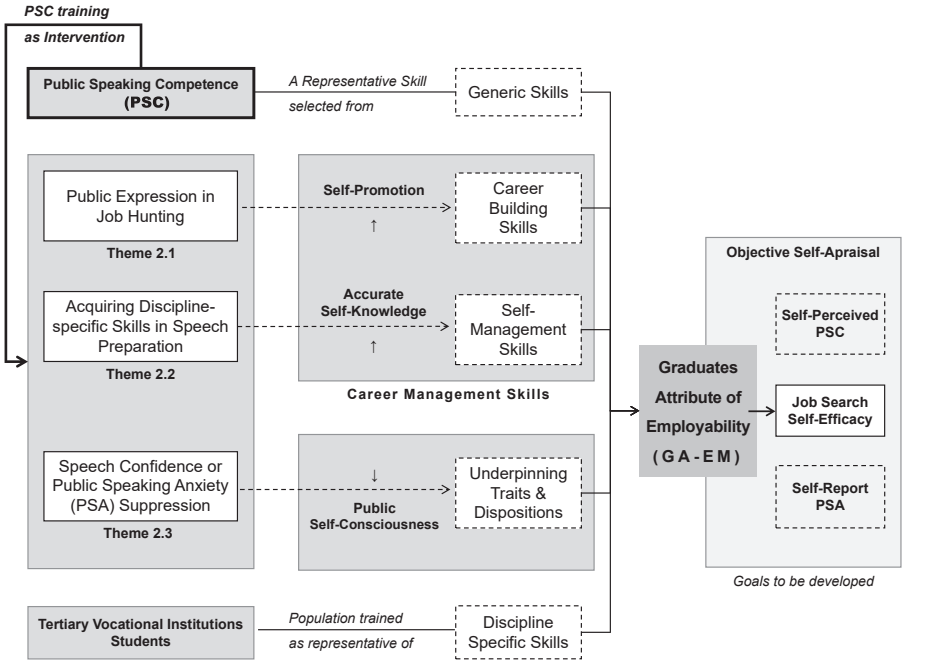

Figure 5. Theoretical Linkage between PSC and GA-EM. Note: ↑ indicates significant improvement and ↓ indicates marked reduction. Source: Created by authors

Building on these analytical results, the theoretical compatibility between PSC and GA-EM was established, positioning PSC as a representative generic skill. To integrate these findings, Figure 5 was refined into a new theoretical model: Public Speaking Competency for Employability (PSC-EM). As illustrated in Figure 6, the GA-EM's key intervention factors—career management skills and personal traits—were retained, while the generic skills component was replaced with PSC as the core element. The TVI student group in the inverted T-shaped talent model replaced the discipline-specific skill component.

Key elements of the PSC-EM model are as follows.

3.2.3.1 PSC-EM developmental goals. At the apex of the pyramid is the ultimate goal: JS-SE. Achieving this goal depends on improving objectively measurable PSC and PSA, positioned at the middle of the pyramid. These improvements were quantitatively evaluated using the JS-SE, SPPSC, and PRPSA scales.

3.2.3.2 PSC-EM intervention conditions and techniques. The dotted line in the segmented triangle represents GA-EM elements, which serve as additional PSC-EM intervention conditions.

(1) Enhancing self-promotion abilities through public-oriented expression methods in job searches, strengthening career building.

(2) Developing objective self-awareness of disciplinary skills through speech preparation, promoting self-management.

(3) Reducing excessive public self-consciousness by fostering speech confidence and suppressing PSA, thereby cultivating optimistic personal traits.

The solid line represents PSC training techniques used to implement these intervention conditions.

3.2.3.3 PSC-EM targeted population. The base of the pyramid represents "inverted T-shaped talent," emphasizing individuals who lack generic skills training—such as diploma students in TVIs. These students primarily focus on mastering discipline-specific skills within a short educational system (typically three years) to prepare for industry roles.

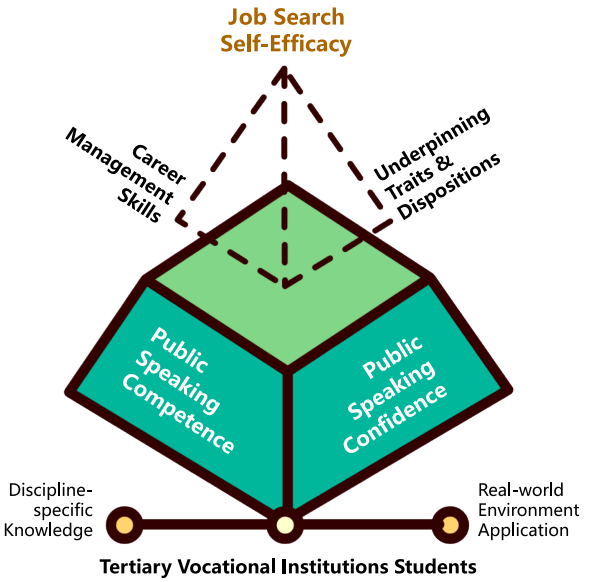

Figure 6. PSC-EM Development Model. Source: Created by authors

3.3 RQ3

RQ3 aims to integrate the PSC-EM model proposed in RQ2 into a real-world VET environment and identify gaps in its development process. A literature review was conducted to examine PSC development in VET, identifying three key patterns as research themes. These were compared with the components of PSC-EM (goals, interventions, and target population) to determine areas requiring further development and propose recommendations.

3.3.1 Thematic analysis. 3.3.1.1 Theme 3.1: work-integrated learning pattern. This pattern enhances students' employability by immersing them in workplace settings early, indirectly boosting PSC through discipline-specific tasks. For instance, senior students mentor freshmen in forensic science and policing roles (Bolton-King, 2022); Singh and Harun (2020) found that trainees improved their English proficiency through workplace tasks; and Saleh *et al*. (2019) reported enhanced research skills through seminar participation. However, two key gaps were identified. First, these programs were not explicitly designed to develop PSC, and improvements in PSC were incidental rather than intentional. Second, they primarily involve students nearing graduation, leaving the effectiveness of PSC training at earlier stages unexamined.

3.3.1.2 Theme 3.2: discipline-specific classroom pattern. This pattern integrates presentations as pedagogical tools for assessing learning outcomes, commonly following a "presentation + evaluation" format. Sokhanvar *et al*. (2021) described this as an "authentic assessment," emphasizing its role in enhancing students' learning experiences and employability. It fosters connections between academic knowledge and real-world applications, strengthening fundamental concepts across disciplines such as applied political science (Bacon, 2018), clinical psychology (Osma *et al*., 2017), public policy (Deeley, 2014), and law (Rigg, 2013). Moreover, it addresses industry needs through tasks such as heritage video presentations (Bolton-King, 2022), engineering reports (Saleh *et al*., 2019), and agricultural leadership training (Easterly *et al*., 2017).

While this approach helps bridge the gap between academia and industry, its role in PSC development remains underexplored. Students are encouraged to deliver presentations that meet industry expectations, enhancing their self-awareness and professional communication skills. However, similar to Theme 3.1, PSC training is employed but not explicitly emphasized.

3.3.1.3 Theme 3.3: general education program pattern. This pattern incorporates dedicated PSC training but exhibits three key deficiencies:

(1) Language diversity: While English is the dominant language, growing research supports PSC training in other languages such as Malay, Arabic, and Mandarin (e.g. Clokie and Fourie, 2016; Deeley, 2014; Ibrahim and Devesh, 2019).

(2) PSA and employment anxiety: Literature indicates that widespread PSA is closely linked to students' concerns about job prospects. Balakrishnan *et al*. (2022) and Räty *et al*. (2018) found that students dissatisfied with their PSC tend to be pessimistic about employment opportunities. Ibrahim and Devesh (2019) observed that PSA levels among Omani diploma students declined in their second year but increased sharply in their third year due to a lack of job market awareness and an underestimation of PSC's role in job interviews. This suggests that fear of job interviews contributes to PSA, highlighting the need for PSC training focused on interview preparation—an existing research gap.

(3) Insufficient practice: PSA courses often emphasize lectures over practical application, exacerbating PSA. Alkooheji and Al-Hattami (2021) and Osma *et al*. (2017) argued that practical experience is essential for reducing PSA, while Sokhanvar *et al*. (2021) noted that designing effective classroom activities remains a challenge, particularly in developing countries with large student populations and limited resources.

3.3.2 Discussion on research gaps. 3.3.2.1 Theme 3.1. In work-integrated learning, PSC is utilized for task presentations but is not intentionally developed. This likely stems from the false assumption that students already possess adequate PSC skills, despite a lack of supporting evidence. Consequently, structured PSC training should be implemented before students engage in workplace tasks. Additionally, this pattern primarily involves students nearing graduation. For TVI students in shorter programs, introducing PSC training at this late stage may be insufficient. Early-stage PSC training is therefore essential. These findings highlight two critical areas for PSC-EM development. First, intervention techniques for PSC training should be carefully designed to ensure effectiveness. Second, PSC-EM should be adapted to include students earlier in their academic journey, rather than focusing solely on those nearing graduation.

3.3.2.2 Theme 3.2. In the discipline-specific classroom pattern, PSC serves as a learning tool within "authentic assessment activities." However, as noted in Theme 3.1, PSC pretraining has been largely overlooked, emphasizing the need to enhance the PSC-EM intervention technique. Another key gap is the need to incorporate more industry-relevant content into students' speech preparation. This would enable them to adapt their presentations to meet evolving industry demands, fostering objectivity rather than relying solely on personal experience and assumptions. Given that PSC speech preparation promotes objective self-awareness, we recommend incorporating this measure into the "Self-management" component of PSC-EM intervention conditions.

3.3.2.3 Theme 3.3. This pattern differs from the previous ones by explicitly incorporating targeted PSC training rather than merely using PSC without structured development. Given the identified deficiencies in PSC training programs, several improvements are proposed.

(1) Emphasizing mother tongues: To integrate international perspectives into local labor markets, PSC training should prioritize instruction in students' native languages.

(2) Enhancing interview training: Since job interviews are instrumental in securing employment, it is imperative to enhance students' ability to demonstrate interview skills publicly. This would facilitate job-seeking self-promotion, a key initiative under the "Career building" section of PSC-EM intervention conditions. However, this training is not recommended for freshmen, who may lack sufficient occupational awareness.

(3) Addressing resource constraints: To mitigate the impact of inadequate PSC training and reduce severe PSA, we propose strategies tailored to resource-limited instructional settings, such as traditional lecture-based classrooms in densely populated countries. Overcrowding in high-density classrooms can hinder educational equality (Vandenberg, 2012; Yelkpieri *et al*., 2012).

3.3.3 Recommendations. Based on current VET patterns for PSC development, we propose the following improvements, which are crucial for advancing PSC-EM and identifying areas requiring further investigation.

3.3.3.1 Revised PSC-EM developmental goals. Evaluate JS-SE, PSC, and PSA in the context of mother-tongue instruction, as suggested in Theme 3.3.

3.3.3.2 Revised PSC-EM intervention conditions and techniques. Intervention conditions:

(1) Career building: Incorporate job-seeking topics into PSC training speech tasks to enhance interview self-promotion during public expression, as suggested in Theme 3.3.

(2) Self-management: Provide students with industry-specific information relevant to their discipline when preparing speeches to foster objective self-awareness, as outlined in Theme 3.2.

(3) Personal Traits: Ensure adequate PSC training and psychological support for job-seeking to mitigate PSA in interviews, as proposed in Theme 3.3.

Intervention techniques:

Specialized PSC training should be prioritized. However, ensuring equitable training opportunities in overcrowded classroom environments remains a challenge, as noted in Themes 3.1, 3.2, and 3.3.

3.3.3.3 Revised PSC-EM target population. Based on Themes 3.1 and 3.3, penultimate-year students are identified as the optimal target for intervention (freshmen and recent graduates are not recommended). Countries with limited resources, large populations, and overcrowded classrooms should be prioritized for PSC-EM implementation.

3.4 RQ4

This section addresses the key unresolved issues from RQ3, particularly the role of PSC training as a PSC-EM intervention technique. Without a thorough examination, integrating PSC-EM intervention conditions into real training settings remains challenging. We reviewed the pedagogical literature to identify relevant research themes and align them with contemporary educational frameworks. This ensures a comprehensive discussion, refining PSC training techniques and incorporating PSC-EM intervention conditions into a cohesive pedagogical strategy.

3.4.1 Thematic analysis. 3.4.1.1 Theme 4.1: training goal setting and evaluation. Several studies (e.g. Balakrishnan *et al*., 2022; Deeley, 2014; Jackson, 2014; Rigg, 2013) emphasize the importance of "personal performance presentation" skills in PSC training, while others (e.g. Grieve *et al*., 2021; Räty *et al*., 2018; Sedlan-König *et al*., 2018) highlight the role of personal attributes such as confidence. Some researchers (e.g. Deeley, 2014; Osma *et al*., 2017) advocate for the use of pre- and post-tests for self-evaluation, indicating that PSC training objectives should encompass both objective skill assessments and personal attribute development.

3.4.1.2 Theme 4.2: pedagogical use and resource provision utilizing information and communication technology (ICT). Mousawa and Elyas (2015) propose using visual online tools such as Zoom and VR, while Jindal (2022) emphasizes the dissemination of employment interview training materials through multimedia language laboratories. Even studies that do not explicitly mention ICT underscore the need for diverse teaching resources, including concrete examples (Bolton-King, 2022) and thematic instructional materials (Alzuoud and Gaudel, 2020; Jackson, 2014). The integration of ICT into PSC training involves two primary functions: enhancing pedagogical effectiveness and providing instructional resources—both of which warrant further exploration.

3.4.1.3 Theme 4.3: performance and assessment methods in learning by doing. Most PSC training methods are grounded in practical classroom approaches following the "learning by doing" concept (Alzuoud and Gaudel, 2020; Osma *et al*., 2017) These methods emphasize performance and assessment within a supportive learning environment (Grieve *et al*., 2021), incorporating "authentic assessment" strategies (Sokhanvar *et al*., 2021) and interactive, cooperative learning activities, such as result presentations (Balakrishnan *et al*., 2022; Deeley, 2014; Jackson, 2014; Rigg, 2013), group discussions (Bolton-King, 2022; Saleh *et al*., 2019), peer evaluations (Alzuoud and Gaudel, 2020; Deeley, 2014; Ibrahim and Devesh, 2019), and role-playing (Jackson, 2014). However, there is a notable lack of strategies ensuring equitable access to PSC training in high-density classrooms, a key concern raised in RQ 3 that demands urgent attention.

3.4.1.4 Theme 4.4: teachers' capacity for classroom management. Although this theme has received minimal attention in the literature, it remains a critical factor in PSC training. Alzuoud and Gaudel (2020) and Bolton-King (2022) emphasize the importance of educators' classroom management strategies, including teacher training and design-based research, to develop effective instructional procedures. However, the literature lacks detailed discussions on the specific content of teaching procedures and educators' classroom management techniques.

3.4.2 Discussion on research gaps. The four identified themes of PSC training pedagogy align with the Core Components of the Education 4.0 for Higher Education (CCEdu4.0-HE) framework proposed by Miranda *et al*. (2021), encompassing competencies, ICT, learning methods, and infrastructure. This alignment suggests that perspectives on PSC training in the reviewed literature are comprehensive and can be examined through this framework. By utilizing the CCEdu4.0-HE perspective, we refine PSC training techniques while integrating additional insights as needed. We then compare these refinements with the PSC-EM model to explore potential integration and propose a holistic pedagogical strategy.

3.4.2.1 Theme 4.1. This theme demonstrates that PSC training objectives should address both skills and personal development. The "competencies" element of CCEdu4.0-HE emphasizes the need for instructional objectives to incorporate structured skillsets, including both hard and soft skills, to meet contemporary educational demands.

To align PSC-EM goals with PSC training objectives, we integrate PSC, PSA, and JS-SE into a composite term: Employability Self-Efficacy Public Speaking Competency. The most effective current measurement approach is the pre- and post-testing, which enables students to objectively assess their progress while mitigating the risk of overconfidence or discouragement (Gallego *et al*., 2022; Jackson, 2012; Mishra and Braun, 2021, p. 95).

3.4.2.2 Theme 4.2. This theme indicates that ICT in PSC training serves two functions: pedagogical facilitation and learning resource provision. For pedagogical applications, ICT tools enable asynchronous online self-learning and synchronous face-to-face instruction, supporting blended learning strategies consistent with CCEdu4.0-HE. While the literature discusses ICT's role in pedagogy, it rarely examines how learning resources are selected, developed, and delivered. Effective resource provision fosters pedagogical innovation, exemplified by the PSC corpus on TED Talks, which has advanced research on teaching methods and employment readiness programs (Namvar *et al*., 2022; Wang and Csomay, 2024).

Based on the PSC-EM intervention conditions, the following ICT-based resources should be provided:

(1) Career building: Provide curated speech resources relevant to job-seeking to help students enhance their self-presentation skills in interviews.

(2) Self-management: Share up-to-date industry-specific speeches tailored to students' disciplines to foster objective self-awareness.

(3) Personal traits: Offer speech case studies to build confidence and encourage proactive job-seeking behaviors.

3.4.2.3 Theme 4.3. This theme encompasses training methodologies that foster a supportive learning environment. It includes: (1) performance and evaluation functions, (2) effective peer dialogue with timely feedback and group collaboration through role-playing, and (3) equitable participation in crowded classrooms. However, extant literature fails to address equitable participation, nor is it a concern in CCEdu4.0-HE.

To address this gap, we propose adopting the "classroom management script" developed by Wolff *et al*. (2021). This structured framework helps educators manage classroom distractions by providing a standardized instructional sequence, spatial configurations, and participant interaction models. We recommend partitioning large classes into synchronous subgroups, where students engage in performance and assessment through group collaboration and peer dialogue, incorporating role-playing and instant feedback. These elements can be consolidated into a structured script resembling a meeting agenda or dialogue synopsis.

It is imperative to monitor whether each participant receives equitable and sufficient training opportunities. A model similar to Toastmasters' meeting-style approach may be beneficial. Equitable participation ensures that PSC-EM intervention conditions effectively influence individuals. The integration strategy encompasses:

(1) Career building: Participating in group-based mock interviews to enhance public speaking and self-promotion skills.

(2) Self-management: Assigning job interview topics as speech tasks to encourage career planning. Peer assessment and instant feedback help refine performance and improve future preparation.

(3) Personal traits: The combination of a supportive group setting and repeated individual performance practice reduces excessive public self-consciousness (e.g. PSA) in public speaking situations, such as interviews.

3.4.2.4 Theme 4.4. While CCEdu4.0-HE emphasizes upgrading classroom infrastructure, this theme focuses on instructors' classroom management, including instructional design and professional development. For instructional design, Themes 4.2 and 4.3 should be integrated into a cohesive classroom strategy, addressing asynchronous and synchronous learning spaces. Regarding professional development, instructors should balance authority and student autonomy. Marder *et al*. (2023) highlight that excessive supervision can hinder academic performance, while structured yet flexible discipline fosters positive learning outcomes. Instructors should establish clear guidelines while avoiding over-intervention.

In Theme 4.2, an ICT-based asynchronous self-learning environment should be implemented. Instructional resources must align with learning objectives, accommodate diverse cultural needs, and support emotional regulation. Student feedback should inform instructional adjustments. In Theme 4.3, control of synchronous group collaboration and peer dialogue should shift to students. Leadership roles can be assigned to facilitate group discussions, while instructors provide structured guidance without direct intervention.

However, this classroom management strategy faces challenges in adapting to local educational conditions. In populous countries where PSC-EM is applied, large class sizes make it difficult to design instructional plans that balance concept explanations with student practice within limited class time. Instructors must ensure an equitable, well-regulated classroom environment while promoting student autonomy.

3.4.3 Recommendations. These four themes were integrated to develop a holistic pedagogical strategy for PSC training, supporting PSC-EM development (Figure 7).

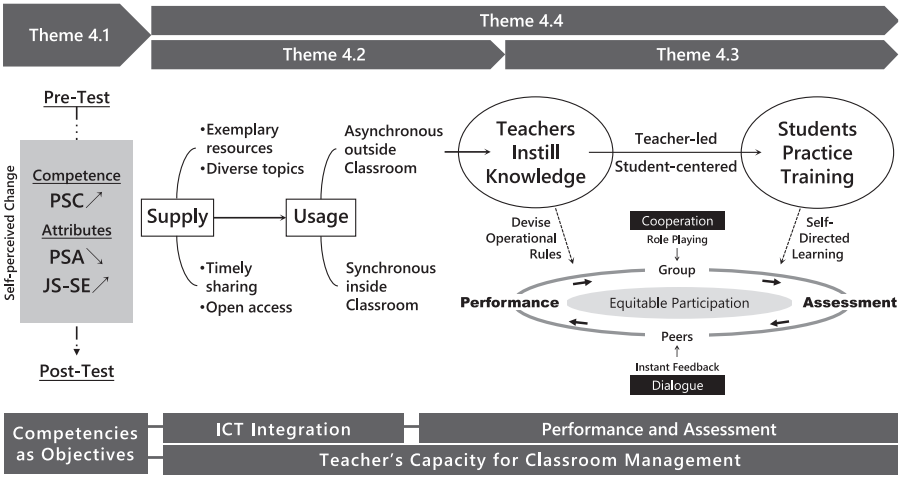

Figure 7. Classroom instructional strategy for PSC training. Source: Created by authors

3.4.3.1 Theme 4.1. The instructional objectives of PSC training should align with PSC-EM goals. The ultimate goal is to develop Employability Self-Efficacy Public Speaking Competency (JS-SE), with PSC and PSA as prerequisite goals. This process should incorporate objective assessment methods, such as pre- and post-tests.

3.4.3.2 Theme 4.2. ICT platforms should serve both resource supply-side and pedagogical use-side functions in PSC training. On the supply side, resources should align with PSC-EM intervention conditions and be accessible in real time to accommodate diverse learner needs. On the use side, ICT should facilitate the seamless integration of asynchronous learning with formal synchronous instruction.

3.4.3.3 Theme 4.3. Students must have equitable opportunities for learning-by-doing training. Crowded classrooms should be divided into synchronous groups dedicated to performance and assessment tasks, incorporating peer dialogue, role-playing, and immediate feedback. These elements should be structured into a management script resembling a meeting protocol and dialogue blueprint. Adjustments should be made to ensure equal training frequency among students. Equitable participation reinforces the effectiveness of PSC-EM interventions, enhancing individual development through a supportive learning environment and simulation training using job search tasks.

3.4.3.4 Theme 4.4. Classroom management strategies should integrate these pedagogical approaches while balancing teacher authority and student autonomy. In ICT-integrated teaching (Theme 4.2), the effectiveness of asynchronous self-directed learning should inform the focus of in-class knowledge transfer. In synchronous small-group training (Theme 4.3), instructors should facilitate self-organized, mutually supportive learning communities without direct supervision. To maintain a structured yet autonomous learning environment, further instructional design refinements are required.

4. Conclusion

This study examined 23 pieces of literature to identify gaps in employment-related competency training for PSC. The proposed recommendations provide coherent and practical guidance for future research, with theoretical and managerial implications.

4.1 Future research

4.1.1 RQ1: enhancing the GA-EM framework. This study develops a GA-EM framework that integrates T-shaped talents and graduate attributes for generic skill development. Future research should refine this framework by incorporating novel elements and empirical case studies of PSC to align with job market dynamics. Expanding its application across various industries and educational institutions will enhance targeted employability training.

4.1.2 RQ2: Validating and expanding the PSC-EM model. This study establishes a PSC-EM conceptual model, emphasizing PSC's role in job-seeking self-promotion, self-awareness of disciplinary skills, and fostering positive job-seeking attitudes. Future research should validate this model in VET contexts through large-scale empirical studies. Longitudinal research is recommended to track changes in students' employability, while cross-sectional comparisons should be conducted to assess application outcomes.

4.1.3 RQ3: Optimizing the PSC-EM model for VET environments. Investigating the PSC-EM model in real-world VET settings reveals key gaps in current PSC developmental approaches. Future research should focus on: developing an evaluation system for JS-SE, PSC, and PSA in native languages; improving PSC-EM intervention conditions for greater effectiveness; strengthening specialized PSC training to address skill gaps; introducing innovative teaching strategies to ensure equal training opportunities in overcrowded classrooms; and assessing penultimate-year students' needs and tailoring localized implementation strategies in developing countries.

4.1.4 RQ4: Refining PSC training pedagogical strategies. This study proposes a pedagogical framework for PSC training that integrates competencies, ICT applications, learning methodologies, and classroom management. Future research should further optimize this framework by:

(1) Developing refined metrics for Employability Self-Efficacy Public Speaking Competency.

(2) Enhancing ICT resource provision to support pedagogical innovation.

(3) Designing structured classroom scripts that promote equitable participation in performance and assessment activities.

(4) Strengthening instructor training to balance authority and student autonomy in high-density classrooms.

In conclusion, future research should integrate the PSC-EM model with instructional practices, focusing on theoretical refinement, empirical validation, application expansion, and pedagogical innovation to enhance PSC training effectiveness.

4.2 Implications

4.2.1 Theoretical implications. This study introduces a novel approach to employability development by integrating key elements of the GA-EM framework and the T-Talent Model into generic skills. It conceptualizes PSC-EM, establishing a new paradigm for integrating generic skills into the labor market. Additionally, it identifies developmental shortcomings in PSC-EM within VET, proposes remedial measures to enhance VET's employability mission, and presents a cognitive framework for pedagogical strategies aimed at PSC training and PSC-EM operationalization. Finally, as illustrated in Figure 8, this study constructs a theoretical framework for PSC-EM development through PSC training, thereby enriching the theoretical foundation in this field.

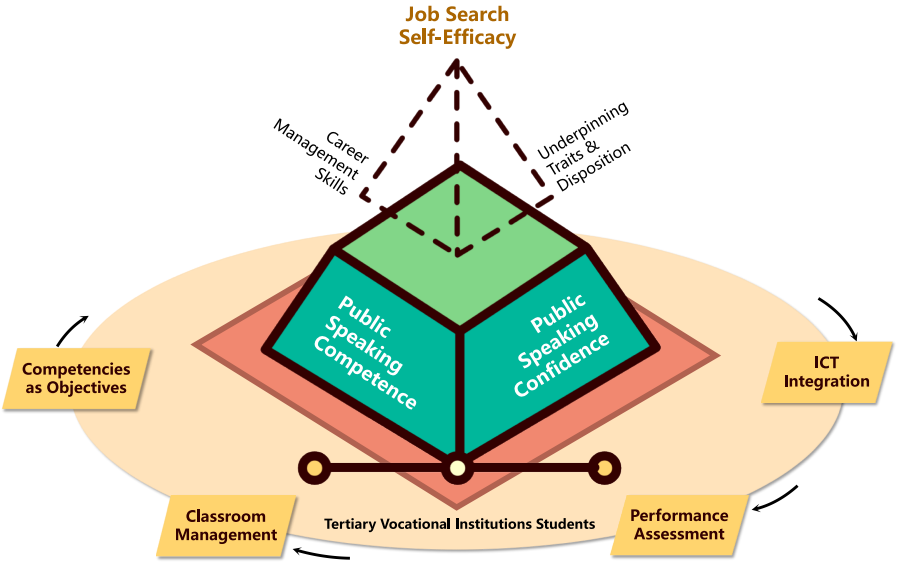

Figure 8. Theoretical Framework for PSC-EM Development and PSC Training. Note: Figure 8 synthesizes Figure 6 (a stereoscopic view of PSC-EM development) and Figure 7 (a bottom-up perspective on pedagogical strategies for PSC training). Source: Created by authors

4.2.2 Managerial implications. This study presents an efficient and cost-effective methodology for VET researchers. Rather than developing each component of the GA-EM framework as a separate module, integrating them into a representative generic skill helps prevent redundancy and reduce costs. Additionally, it provides VET policymakers and TVI managers with strategical guidance for revitalizing PSC, addressing the insufficient focus on generic skills in VET, and improving employment promotion efforts. To further support implementation, an actionable guide has been summarized to clarify PSC-EM development and its training requirements (see Appendix). This guide encourages VET educators to apply these strategies, enhancing vocational diploma students' access to PSC educational resources and improving their job-seeking preparedness.

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Data availability statement

The authors confirm that all data generated or analyzed during this study are included in this published article. Furthermore, the primary and secondary sources and data supporting the findings of this study are publicly available at the time of submission.

Detailed illustration of the subjected topic as been discussed.

Statements and declarations

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(The Appendix follows overleaf)

Appendix

Table A1. Actionable guide for PSC-EM development and training

PSC-EM development requirements	PSC training needs		
Goal: The ultimate goal is JS-SE, which depends on objectively perceived improvements in PSC and PSA within native language contexts	Competencies – Instructional Objectives: Align instructional objectives with PSC-EM development goals. Self-appraisal should be conducted before and after the intervention and can be measured using the JS-SE, SPPSC, and PRPSA scales		
Interventions:	*ICT integration:*	*Performance and assessment:*	
1. Technique: Refers to the pedagogy of PSC training, which implements PSC-EM intervention conditions. The challenge is ensuring equitable educational opportunities in crowded classrooms	ICT serves as a pedagogical innovation tool and a learning resource provider, though resource provision needs improvement	Assessment follows an authentic evaluation approach based on the "learning by doing" philosophy. The key challenge is ensuring fair engagement through a well-designed classroom management script	
2. Conditions: Refers to the key components necessary for PSC to meet graduates' employability attributes (Bridgstock, 2009)	The supply of resources should be real-time, open, and tailored to individual needs while meeting PSC-EM intervention conditions	Equitable participation is essential for the PSC-EM intervention conditions to have a meaningful impact on individuals	
(a) Career building via public expression: Enhancing self-promotion skills for job searches is crucial	(a) Training examples: Simulated job hunting and interview scenarios	a) Effectively demonstrating one's abilities in a group-based mock interview	
(b) Self-management during speech preparation: Strengthening self-awareness of subject-specific skills and their relevance to industry needs	(b) Resource materials: Information on the latest industry trends	(b) Using job interview topics as speech tasks to encourage students to manage their career planning and refine their performance through peer appraisal and instant feedback	
(c) Building confidence through public speaking: Reducing public self-consciousness and boosting confidence in job interviews	(c) Resource materials: Inspirational and motivational workplace stories	(c) Building confidence in a supportive environment by incorporating role-playing, collaboration, and repeated practice in a simulated setting	
Population: This refers to diploma students in TVIs, who often lack generic skill development but acquire disciplinary-specific skills within a short period (typically three years). The most urgent intervention targets include penultimate-year graduates and countries with large populations and overcrowded classrooms	*Classroom management:* Instructional procedures should integrate PSC training strategies while balancing teacher authority and student autonomy. In ICT-integrated formal instruction, the focus of classroom knowledge transfer depends on the effectiveness of asynchronous self-directed learning. In synchronous group self-directed training, teachers facilitate student-led learning communities without direct intervention		

Source(s): Created by authors

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