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How Career Development Programs Shape Career Decision-Making among University Students: A Systematic Review of Process Mechanisms

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Abstract. Career development programs are utilized in higher education to help university students explore and make career decisions. Evidence of how program experiences relate to career decisions has been reported in a number of studies concerning changes in self-efficacy, readiness, and other outcomes, but this evidence is quite spread out. This systematic review was conducted by synthesizing studies found in Web of Science, ERIC, Scopus, and ProQuest from 2017–2026 and documented using PRISMA 2020. A total of 15 studies were included. In different categories of programs, the synthesis revealed five recurring processes: self-understanding and reflection, career exposure and reality testing, career-related self-efficacy, relational support and career knowledge and decision processing. Results indicate that career decisions evolve as students engage in learning experiences, experiment with career options, and seek out support and information. In regard to university career development practice, the review suggests that connecting reflection, occupational experience and guided decision making is more important than provision of information.

Keywords: career development programs, career decision-making, higher education, process mechanisms, systematic review

1. Introduction

Career decision-making is an active, dynamic process that involves university students examining, enlarging, and tweaking their career interests and objectives while evaluating their own personality traits and characteristics and how they match with various career options.

For the purposes of this review, the term career development programs is used to represent a broader term for initiatives that involve structured educational, counselling, mentoring, guidance, preparation and experiential activities with clear career development goals.Internships and work-integrated learning activities will only be counted if there is an explicit career related learning, guidance, reflection or decision making component.

Prior studies indicate that career development programs can relate to career self-efficacy, career readiness and employability. But there is still a limited understanding of the processes in which and the reasons why students might undergo these changes in an integrated way. Qualitative and mixed-

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methods studies, in addition to quantitative studies, can help to shed light on how the students make sense of their program experiences, why they affirm/reconsider their career plans, and the role of relational and contextual factors in affirming/reconsidering career plans. The focus of the review is on decision making processes; interactions are explored within the context of these decision making processes.

RQ1: What are the theoretical viewpoints, research designs, and types of career development programs that have been explored in previous empirical research on career decision making of university students?

RQ2: What changes in university students' career decision making have been reported in various types of career development programs?

RQ3: How are career development programs related to whether university students explore, confirm or reconsider their career goals, or change their career direction and through what processes is this relationship seen?

2. Methods

The identification and screening of relevant studies were reported following PRISMA 2020 guidelines.Four databases were used: Web of Science, ERIC, Scopus and ProQuest. Literature from 2017-2026 was searched.

2.1. Eligibility criteria

Eligibility criteria were based on an adapted PICO framework (Population, Program, Comparison, and Outcome), to allow for inclusion of various types of evidence. Population: Studies could be included if participants were university students or graduates with a specific reflection on structured career development experiences during their time at university.

Program: Studies must be conducted in a specific and structured career development program, such as career development courses, career counselling/guidance, mentoring, academic/career advising, career services, career preparation programs or structured activities with explicit career development goals.

Outcome: Studies had to have a substantial focus on career choice, career decision making, career exploration, career indecision or decidedness, career goals, career direction, career intentions, confirmation, reconsideration, or revisions of career plans.

The method of research was not considered as a distinct exclusion criterion. Studies with quantitative, qualitative, and mixed methods were eligible provided they included evidence relevant to the research questions.

2.2. Study selection

A preliminary eligibility check retained 82 records; 51 were excluded, leaving 31 reports for full-text assessment. All 31 reports were retrieved. Sixteen were excluded at full text: three did not substantively examine a career-development program aligned with the review focus, two did not substantively examine career decision-making, and eleven did not provide sufficiently direct evidence linking program experience to the career-decision process. Fifteen studies met the final eligibility criteria and were included in the synthesis. One included study, Prescod et al. [1], drew participants from the larger NSF-funded COMPASS project (Convincing Outstanding Math-Potential Admits to Succeed in STEM). The COMPASS project is identified here as the setting of

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that study; the number of included reports must be counted separately under the PRISMA 2020 definition.The complete study-selection process is presented in Figure 1.

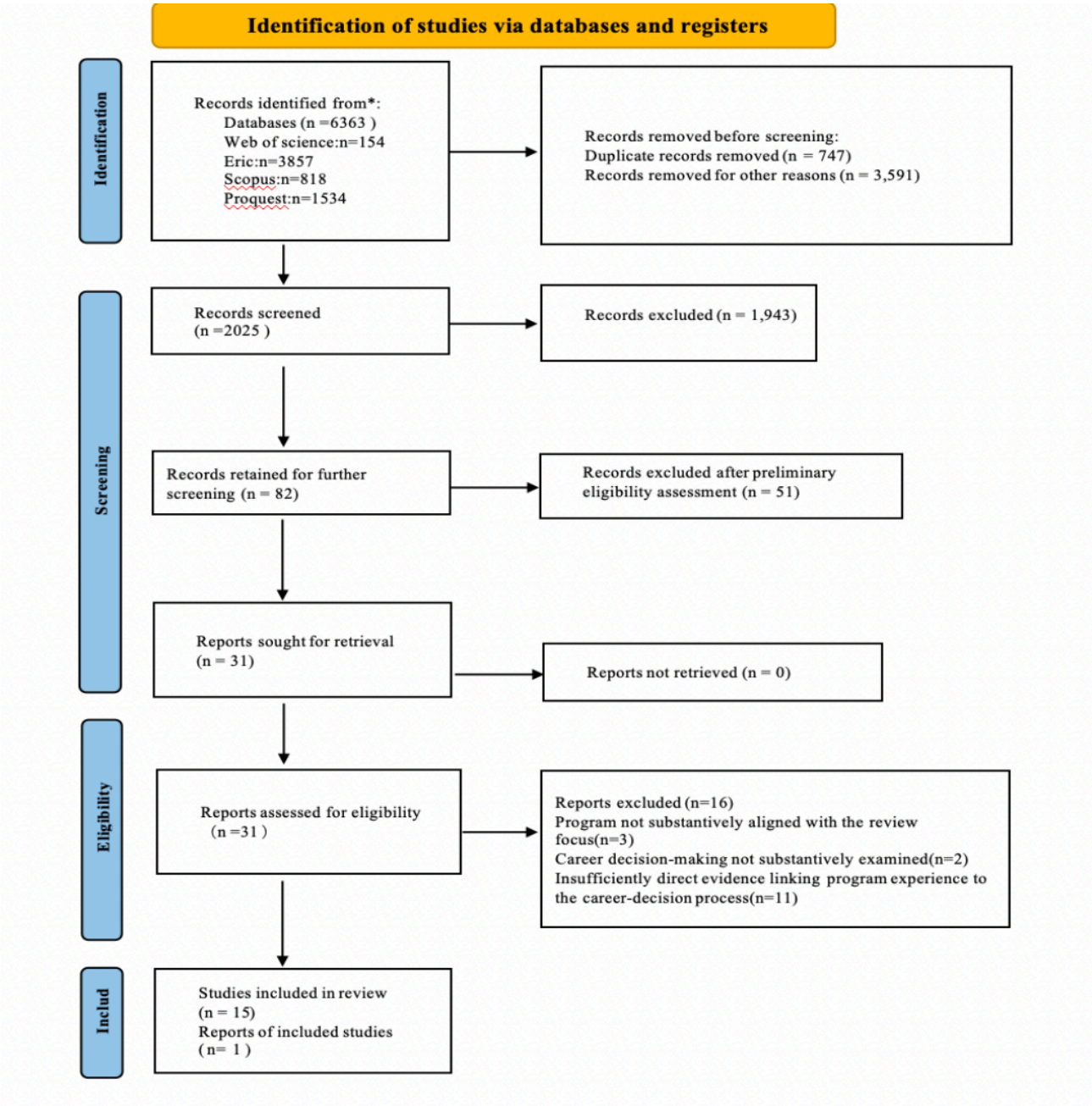


Figure 1. PRISMA 2020 flow diagram of the literature identification, screening, eligibility assessment, and inclusion process

2.3. Data extraction and synthesis

Information pertinent to every study was identified such as theoretical frameworks, research methodology, career development program types, research focus, career decision-making outcomes, proposed pathways of influence, and gaps in the research. Not all positive educational outcomes were considered to be part of career decision-making. Instead, it focused on evidence related to

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career exploration, career clarification, confirmation of career goals, narrowing of career options, reconsideration of career plans, career goal formation, and changes in career direction.

3. Results

3.1. Evidence base and program characteristics

The 15 included studies were heterogeneous in both program form and research design. Most were conducted in the United States, with additional work from Australia, Taiwan, and China. Program forms included formal career and career-related courses, counselling or assessment, career-preparation and advising programs, learning communities with mentoring, work-integrated learning, and internships.

3.2. Theoretical perspectives

None of the studies reviewed used a uniform theory. Social-cognitive perspectives were a major category, focusing on the role of learning experiences, self-efficacy, outcome expectations, and career goals as well as perceived supports and barriers to career decision-making [2-6]. Constructivist, narrative, and identity-development theories highlighted meaning making, career identity, and reevaluating the potential for future careers [7-9]. Other studies used the theory of cognitive information processing [1], systems theory framework of career development [10], learning theory [11], and happenstance theory. Other studies relied on a mix of mentoring, experiential learning, self-expression, or validation and didn't have a single career-development theory as the basis for the study [12-14].

3.3. Research designs and data sources

The studies included were qualitative and mixed methods with some quantitative elements. The data employed to consider underlying processes included primarily interviews, focus groups, course reflections, portfolios, open-ended responses, classroom observations and program documents.

Phenomenological studies helped to provide insights into the experience of students with specific career development programs [1, 4, 13]. Narrative research helped to illuminate the ways students reinterpret their career experiences [7].

3.4. Changes in career decision-making across different programs

Change in career decision-making identified in the 15 studies included was not necessarily finalization of a career decision. Students may become more committed to an already chosen career path, further limit their career interests, reassess goals, abandon a career path that was previously appealing, or see the need for more exploration.

3.5. Processes and mechanisms of influence

Self-Understanding and Reflection. Career assessments, narrative activities, course reflections, and identity exploration helped students reorganise their understanding of personal interests, values, abilities, and previous experiences. Life Design and identity exploration programs encouraged students to reinterpret their personal experiences [7, 8], while sand-tray career counselling enabled students to articulate and discuss previously unclear career-related thoughts [13].

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Career Exposure and Reality Testing. Exposure to authentic occupational environments enabled students to compare their existing career expectations with actual workplace conditions. Opportunities to assess career fit included work-integrated learning, hospitality internships, and programs involving practitioners and professionals [4, 9, 12].

Career-Related Self-Efficacy. Several studies showed that career development programs led to changes in students' beliefs regarding career exploration, accessing career information, and career decision making. Greater confidence in career decision-making and willingness to take action was associated with STEM career exploration, near-peer mentoring, instructor validation, and student affairs coursework, which connected specific learning experiences with career decision-making and action [2, 3, 6, 14].

Relational Support. Careers teachers, career counsellors, peers, mentors, academic advisors, practitioners and professional networks were repeatedly cited as playing a role in students' careers decision-making. Peer advising and degree-map advising also included authentic role-based experiences or career planning activities, along with feedback [11, 15]. These relationships offered opportunities to make career connections, role models, and validation.

Career Knowledge and Decision Processing. Career development programs helped students connect self-knowledge with occupational knowledge, thereby transforming relatively unclear career goals into more specific options. Career planning courses informed by Cognitive Information Processing theory and degree-map advising provide examples of this process [1, 11]. Career information became relevant to decision-making when students interpreted it in relation to their interests, abilities, goals, and practical constraints.

Program components lead to learning, relational, or experiential encounters, which are associated with changes in self-understanding, self-efficacy, career knowledge, or perceived career fit, and these changes may further contribute to career exploration, confirmation, reconsideration, or adjustment of career direction.

4. Discussion

The five processes should not be treated as separate stages or independent effects. Designs reviewed do not often lend themselves to isolating the contribution of each program element. Synthesis thus outlines potential connections made among studies, not an established sequence of causality.

Five similarities in dimensions were found across disciplines and across program types: self-understanding, career exposure, self-efficacy, relational support and decision processing. The repeated occurrences indicate that they are helpful dimensions for understanding the relationship between career development programs and students' career decisions. But current theory mostly focuses on various elements of this process. Social-cognitive approaches focus on self-efficacy and goals, constructivist approaches on meaning-making and identity, and systemic approaches on environmental and temporal influences. A limited number of these studies in this collection combine these factors and describe how the activities of the program, the interpretation by the individual(s), and the context of the environment interact with each other.

A general trend in the literature reviewed was that the studies tended to focus more on psychological changes in the individual and the immediate relationship support than on more global influences. Family expectations, institutional structures, labour market conditions, cultural norms and changes over time were less frequently analysed jointly. Moreover, of the 15 studies included, the majority were carried out in the United States, and there was a significant number of studies in STEM fields and other professional occupations. The results of the research cannot be taken for

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granted as being true for every country, for every cultural context, for every discipline, for every gender, for every year of study or for every student population.

Implications for program design include that career development programs require an additional component beyond occupational information. Based on the examples examined, the combination of structured reflection, authentic career exposure, relational support and career decision-making activities are all useful. Progress should be catered for in different forms too. Although the result may be confirmation of a previous career goal, narrowing career choices, deciding on a change in direction or identifying the need for more career exploration can all be significant steps in the career decision-making process.

Research is still required to find out from a program perspective which program components work well for which students and in what situations. The cultural background, family influences, resources in the institutions, labour market conditions, academic disciplines, gender and various stages of study should also be explored in a more systematic manner.

5. Conclusion

The final set of criteria resulted in 15 empirical studies that were included in the synthesis of the heterogeneous empirical evidence in this systematic review on career development programs and career decision making of university students. Five common processes occurred across program types: self-understanding and reflection, career exposure and reality testing, career related self-efficacy, relational support, and career knowledge and decision processing.

Reporting of cultural background, gender, academic discipline, family circumstances and institutional environments was also inconsistent, which hampered the review to assess the nature of the influence that programs have on these groups.

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