Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Behavioral Correlates of Career Preparation Among Final-Year University Students and Recent Graduates in Bukavu, Democratic Republic of the Congo: An Exploratory Barrier Analysis

Bantu Rusagara Jack
Institut Supérieur Pédagogique d'Idjwi
Byamungu Wanguwabo David
byamungudavid@gmail.com

université du cinquantenaire de Lwiro-Kabare

Research Article

Keywords: career preparation, Barrier Analysis, graduate employability, social support, action efficacy, school-to-work transition

Posted Date: November 17th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11378834/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License

Additional Declarations: No competing interests reported.

Abstract

Youth in low-income and fragile settings face a difficult transition from higher education to work, yet structural constraints do not fully explain why some graduates actively prepare for employment or entrepreneurship whereas others do not. This exploratory cross-sectional study applied Barrier Analysis to examine behavioral correlates of career preparation among 90 final-year university students and recent graduates in Bukavu, Democratic Republic of the Congo. Participants were classified in the original field dataset as Doers (n = 45) or Non-Doers (n = 45). Because a later screening rule was discordant with the field classification for 20 participants, the analysis explicitly distinguishes the primary field-group comparison from sensitivity analyses. Career-preparation activities, perceived social norms, self-efficacy, access, risk perceptions, action efficacy, institutional conditions, cultural beliefs, and context-specific religious beliefs were assessed using a structured interview questionnaire. Fisher's exact tests, odds ratios (ORs) with 95% confidence intervals, a Mann-Whitney comparison of activity counts, a ± 15-percentage-point practical prioritization threshold, and Holm correction for multiplicity were used. Doers reported more preparation activities than Non-Doers (mean 2.5 vs. 1.5; $p < .001$). Perceived approval was substantially more frequent among Doers (77.8% vs. 35.6%; OR = 6.34, 95% CI 2.50-16.09; $p < .001$) and was the only primary comparison remaining significant after Holm correction. Perceived action efficacy was also higher among Doers (88.9% vs. 64.4%; OR = 4.41, 95% CI 1.45–13.42; $p = .012$) and appeared more robust across classification sensitivity analyses. These findings suggest that social support and confidence that preparatory effort is worthwhile may be more relevant to career-preparation behavior than general risk awareness. Given non-probability sampling, measurement asymmetries, and classification discordance, the results should be interpreted as formative and hypothesis-generating rather than population estimates or causal effects.

1. Introduction

Youth labour-market transitions remain a major development challenge, particularly in low-income settings where formal job creation, social protection, and institutional labour-market intermediation are limited. The International Labour Organization (ILO, 2024a) estimates that 20.4% of young people globally were not in employment, education, or training in 2023. In sub-Saharan Africa, the corresponding rate was 21.9%, representing approximately 53 million young people, while insecure work remains the dominant form of labour-market entry for many young adults (ILO, 2024b). Importantly, tertiary education does not eliminate transition difficulties: in low-income countries, young people with advanced education may experience higher unemployment than those with basic education because the supply of skilled graduates can outpace the creation of skilled jobs (ILO, 2024a).

These pressures are particularly salient in the Democratic Republic of the Congo (DRC), where prolonged insecurity, weak institutional capacity, and uneven economic transformation shape both education and employment opportunities. Recent Congolese studies have emphasized the importance of academic competencies, university-employer linkages, practical training, and contextual socio-political conditions for graduate employability (Muepu et al., 2024; Nsenge et al., 2023). Current policy initiatives similarly prioritize

market-relevant skills, apprenticeships, internships, entrepreneurship, and stronger private-sector engagement as mechanisms for improving youth employment pathways in the DRC (World Bank, 2026).

However, structural constraints alone do not explain variation in how young people respond to difficult labour markets. Career preparation is a form of career self-management: it involves intentional actions such as developing human capital, searching and applying for jobs, networking, obtaining practical experience, and planning entrepreneurial activity. Recent research conceptualizes career self-management as a multidimensional set of self-initiated, goal-directed behaviors linked to employability resources (Wilhelm et al., 2024). Within Social Cognitive Career Theory (SCCT), such behaviors are expected to depend partly on self-efficacy, outcome expectations, goals, and contextual supports or barriers (Lent & Brown, 2013).

Empirical studies increasingly support the relevance of social and experiential resources. Career-related social support has been associated with stronger job-search behavior and career decision-making self-efficacy among final-year university students (Xiong et al., 2025), while graduates with stronger career confidence, social support, and career self-management resources report more favorable transition outcomes (Jackson et al., 2025). In Africa, randomized and quasi-experimental evidence suggests that employability programs can improve work readiness, networking, and the speed of labour-market entry, although effects on employment and income are not always sustained (Alcid et al., 2023; Brudevold-Newman & Ubfal, 2024). Work-integrated learning has also been linked to graduate employability through digital and practical skill development in Nigeria (Adegbite, 2024).

Despite these advances, evidence remains limited on the behavioral determinants of active career preparation among university students and recent graduates in fragile, conflict-affected environments in Central Africa. This study therefore uses Barrier Analysis as a formative framework to compare participants who were classified as actively engaged in career preparation (Doers) with those classified as less engaged (Non-Doers). The primary research question is: which perceived behavioral determinants most clearly differentiate the two groups in Bukavu? Guided by SCCT and the Barrier Analysis framework, the study focuses especially on social approval/support, perceived efficacy of preparatory effort, self-efficacy, access constraints, cues for action, risk and severity perceptions, institutional conditions, cultural beliefs, and a context-specific domain concerning perceived divine assistance. Because the dataset contains a documented inconsistency between field classification and a later screening rule, a second objective is to assess whether substantive conclusions remain stable under alternative classification assumptions.

2. Conceptual framework

The revised framework deliberately avoids combining multiple partially overlapping theories. SCCT is used as the principal explanatory model because it directly links self-efficacy, outcome expectations, contextual supports and barriers, goals, and adaptive career behaviors (Lent & Brown, 2013). Barrier Analysis is treated as a formative assessment framework rather than as a standalone causal theory. This distinction reduces conceptual redundancy and clarifies that the study examines perceived determinants associated with behavior, not objective labour-market conditions or causal mechanisms.

In this study, career preparation is operationalized as engagement in concrete career self-management activities during the previous three years, including internships or professional placements, job applications, development of a business idea or plan, entrepreneurship training, career-guidance activities, starting or managing a business, and professional networking. This operational definition is consistent with recent multidimensional conceptualizations of career self-management that distinguish human-capital development, contact building and use, goal setting/planning, and other proactive career behaviors (Wilhelm et al., 2024).

Table 1
Behavioral domains used in the comparative analysis and their conceptual interpretation

Domain	Operational meaning	Conceptual anchor
Perceived self-efficacy	Confidence in one's capacity to perform career-related tasks.	SCCT self-efficacy
Positive consequences	Expected benefits of preparing.	SCCT outcome expectations
Negative consequences	Expected costs or difficulties of preparing.	SCCT barriers / outcome expectations
Social norms	Perceived approval or disapproval from significant others.	Contextual support / social influence
Access/availability	Perceived access to opportunities, services, resources, and affordability.	Contextual supports and barriers
Cues for action	Prompts or reminders that encourage preparation.	Behavioral prompts
Susceptibility/risk	Perceived likelihood of difficulties when insufficiently prepared.	Barrier Analysis risk perception
Severity	Perceived seriousness of inadequate skills or preparation.	Barrier Analysis severity perception
Action efficacy	Belief that preparatory effort can build useful skills or improve readiness.	Outcome expectation / response efficacy
Perceived divine assistance	Belief that divine assistance may substitute for or interact with preparation.	Context-specific belief domain
Political/institutional environment	Perceived institutional rules, policies, and systemic constraints.	Structural context
Culture	Cultural beliefs, practices, and expectations that may enable or constrain preparation.	Contextual norms and structural context

Note. Universal motivators were elicited in open-ended responses but were not treated as a separate inferential determinant in the comparative analysis. Barrier Analysis domains are interpreted as perceived determinants, not as objectively verified conditions.

3. Methods

3.1. Study design and setting

This was an exploratory cross-sectional comparative study with an embedded open-response component, conducted in Bukavu, South Kivu, DRC, between April and May 2026. The study was implemented in the context of the International Business and Multilingual Communication course in the Master's programme in Languages and Business Informatics at the Official University of Bukavu. The analytic approach was guided by Barrier Analysis, which compares people practicing a target behavior with those not practicing it in order to identify potentially actionable perceived determinants (Kittle, 2017). Because the sampling was purposive and the group sizes were fixed for formative comparison, inferential results are interpreted as exploratory rather than population-representative estimates.

3.2. Target behavior and Doer-Non-Doer classification

The target behavior was active career preparation for employment or entrepreneurship, represented by one or more concrete activities during the previous three years: internship or professional placement, job application, business planning, entrepreneurship training, career-guidance or job-search workshops, starting or managing a business, or professional networking. The original field dataset contained 45 participants labelled Doers and 45 labelled Non-Doers. A later audit showed that the simple screening rule "took at least one preparation step" did not reproduce the field labels: 17 designated Non-Doers would have been reclassified as Doers and three designated Doers would have been reclassified as Non-Doers. Because the exact field-classification algorithm was not fully documented in the source manuscript and some determinant items were group-specific, the primary tables retain the original field groups, while classification sensitivity is reported explicitly as a robustness limitation rather than concealed.

Two sensitivity approaches were used in the source analysis: (1) a concordant-only comparison restricted to participants whose field label agreed with the later screening rule and (2) full reclassification using the screening rule. These analyses are used to assess whether the direction of the two leading findings social approval and action efficacy depends strongly on the original field labels. Numerical sensitivity tables should be supplied as supplementary material if the individual-level dataset is available to the authors.

3.3. Participants and sampling

Eligible participants were final-year university students and recent graduates who had completed university within the preceding three years and were in the transition from higher education to employment or entrepreneurship. Participants were recruited purposively because Barrier Analysis requires respondents relevant to the behavior under investigation. The final sample comprised 90 participants, evenly allocated in the field dataset to 45 Doers and 45 Non-Doers. No probability-based population inference is therefore claimed. The choice of approximately 45 participants per group is consistent with common Barrier Analysis practice for rapid formative comparison, but it should not be interpreted as a conventional power calculation for detecting small effects (Kittle, 2017).

3.4. Questionnaire and measures

Data were collected using a structured interview questionnaire adapted to career preparation. Items covered the 12 domains summarized in Table 1 and included both closed and open-ended questions. The instrument

elicited preparation activities, confidence, expected benefits and difficulties, perceived approval and disapproval, access and cost constraints, reminders, risk and severity perceptions, action efficacy, perceived divine assistance, political/institutional constraints, and cultural themes. Several questions were not worded identically for Doers and Non-Doers (for example, experienced versus hypothetical reminders or skills). These comparisons are marked in the results and are treated as secondary exploratory contrasts rather than equivalent measurements.

The source manuscript does not provide sufficient documentation on the questionnaire language(s), translation/back-translation, pilot testing, interviewer training, or formal reliability assessment. These details should be added from the study records before journal submission. In the revised interpretation, absence of such documentation is treated as a measurement limitation rather than being replaced with unverified procedures.

3.5. Open-ended responses

Open-ended responses were grouped into recurring descriptive themes that contextualized the quantitative comparisons, including sources of social approval or opposition, requested forms of support, perceived skill gaps, financial and institutional constraints, cultural expectations, and religious interpretations. Because the source manuscript does not document double coding, a formal codebook, or inter-rater reliability, these qualitative findings are used only for triangulation and illustration; they are not presented as an independent qualitative study or as prevalence estimates for the wider population.

3.6. Statistical analysis

Categorical contrasts between Doers and Non-Doers were summarized using percentages, absolute percentage-point differences (Doers minus Non-Doers), odds ratios (ORs), 95% confidence intervals (CIs), and two-sided Fisher's exact tests. A Haldane-Anscombe continuity correction of 0.5 was used for OR estimation when a 2 × 2 table contained a zero cell. The number of distinct preparation activities was compared between groups using the Mann-Whitney U test because the count distribution was not assumed to be normally distributed. Consistent with the formative logic of Barrier Analysis, an absolute difference of at least 15 percentage points was used as a practical prioritization threshold; this criterion was kept conceptually separate from statistical significance. To reduce false-positive interpretation arising from multiple determinant comparisons, Holm-adjusted p-values were used to identify findings that remained statistically significant after multiplicity correction (Holm, 1979). Unadjusted p-values are retained in the main table for transparency, but conclusions prioritize effect size, confidence intervals, Holm-adjusted significance, measurement equivalence, and classification robustness. Missing responses were not imputed; denominators are stated where they differ from 45 per group. Statistical significance was defined as two-sided $p < .05$, while all analyses are considered exploratory because of purposive sampling, small cell counts, and classification uncertainty.

3.7. Ethical considerations

The study protocol was approved by the Ethics Committee of the Université du Cinquatenaire de Lwiro-Kabare (approval No. 20223UNI50KAB 0001w). Conducted in accordance with the Declaration of Helsinki, this exploratory barrier analysis examined behavioral correlates of career preparation among final-year

university students and recent graduates in Bukavu, Democratic Republic of the Congo. Participants provided informed consent before structured interviews. Data were collected anonymously, treated confidentially, and used exclusively for research.

4. Results

4.1. Participant information and data-quality audit

The sample comprised 90 eligible participants, with 45 in each field-defined group. Educational status was incompletely specified: two-thirds of both groups were recorded only as eligible without indicating whether they were final-year students or recent graduates. This missingness prevents meaningful subgroup analysis by student versus graduate status and is therefore reported as a data-quality limitation rather than ignored.

Table 2
Eligibility and educational-status information by field-defined group

Eligibility status	**Doers (n = 45), n (%)**	**Non-Doers (n = 45), n (%)**
Graduated within the past 3 years	14 (31.1)	11 (24.4)
Final-year student (status specified)	1 (2.2)	4 (8.9)
Eligible, status not specified	30 (66.7)	30 (66.7)
Total	45 (100)	45 (100)
Note. No inferential test is reported because educational status was largely unspecified.		

A classification audit identified discordance between the original field label and the later binary screening rule for 20 of 90 participants. Specifically, 17 field-defined Non-Doers reported at least one preparation step and would meet the later screening definition of Doer, whereas three field-defined Doers would not. This discrepancy materially limits the interpretability of all between-group comparisons and is addressed through sensitivity interpretation in Section 4.4 and the limitations section.

4.2. Career-preparation activities

Internships or professional placements were the most frequently reported preparation activity, followed by job applications. Field-defined Doers reported a higher number of distinct preparation activities (M = 2.5, SD = 1.1) than Non-Doers (M = 1.5, SD = 0.8; Mann-Whitney $p < .001$). Internships were reported by 80.0% of Doers and 57.8% of Non-Doers, while starting or managing a business was reported by 24.4% and 4.4%, respectively. Other activity differences were smaller or statistically uncertain.

Table 3
Employment and entrepreneurship preparation activities by field-defined group

Activity in the past 3 years	Doers n (%)	Non-Doers n (%)	Diff. (pp)	OR	95% CI	p
Took at least one step to prepare (screening item)	44 (97.8)	35 (77.8)	+ 20.0	12.57	[1.53, 103]	0.007
Internship / professional placement	36 (80.0)	26 (57.8)	+ 22.2	2.92	[1.14, 7.48]	0.039
Job application(s)	27 (60.0)	20 (44.4)	+ 15.6	1.88	[0.81, 4.33]	0.205
Business idea or business plan developed	14 (31.1)	6 (13.3)	+ 17.8	2.94	[1.01, 8.53]	0.074
Entrepreneurship training	10 (22.2)	7 (15.6)	+ 6.7	1.55	[0.53, 4.52]	0.591
Career-guidance / job-search workshops	8 (17.8)	5 (11.1)	+ 6.7	1.73	[0.52, 5.76]	0.550
Started or managed a business	11 (24.4)	2 (4.4)	+ 20.0	6.96	[1.44, 33.51]	0.014
Professional networking activities	5 (11.1)	2 (4.4)	+ 6.7	2.69	[0.49, 14.64]	0.434
None of the above	0 (0.0)	1 (2.2)	-2.2	0.33†	[0.01, 8.22]	1.000

Note. pp = percentage points (Doers - Non-Doers); OR = odds ratio. p-values are two-sided Fisher's exact tests. † 0.5 was added to each cell for OR estimation because of a zero cell. The screening item reveals the documented classification discordance and should not be interpreted as an independent outcome.

4.3. Behavioral determinants

The largest unadjusted contrast concerned perceived social approval. Most people were reported to approve of career preparation by 77.8% of Doers versus 35.6% of Non-Doers (OR = 6.34, 95% CI 2.50-16.09; p < .001). Doers were also more likely to report that nobody disapproved (71.1% vs. 42.2%; OR = 3.37, 95% CI 1.40–8.08; p = .010). Perceived action efficacy also differed: 88.9% of Doers versus 64.4% of Non-Doers believed that preparation efforts were very or fairly likely to build needed skills (OR = 4.41, 95% CI 1.45–13.42; p = .012). General confidence in obtaining a job or starting a business did not differ meaningfully between groups (48.9% vs. 46.7%).

Several other contrasts met the ± 15-percentage-point practical threshold but were statistically uncertain, including perceived difficulty accessing opportunities, demand for facilitated internships, reminders, and risk perceptions. Importantly, some of these questions used hypothetical wording for Non-Doers and experienced wording for Doers; such rows should not be treated as strictly equivalent measurement. Perceived divine assistance and political/institutional barriers did not significantly differentiate groups in the primary comparison.

Table 4
Comparative analysis of behavioral determinants and selected sub-factors

Determinant	Sub-factor	Doers %	Non-Doers %	Diff. (pp)	OR	95% CI	p
1. Self-efficacy	Very/extremely confident to get a job or start a business (Q1)	48.9	46.7	+ 2.2	1.09	[0.48, 2.50]	1.000
	Names “succeeding in a job interview” (Q2)‡	8.9	26.7	-17.8	0.27	[0.08, 0.91]	.051
2. Positive consequences	Advantage: strengthens self-confidence (Q3B)	20.0	6.7	+ 13.3	3.50	[0.88, 13.92]	.118
	Advantage: increases chances of getting a job (Q3B)	26.7	31.1	-4.4	0.81	[0.32, 2.01]	.816
3. Negative consequences	Difficulty: lack of relevant information (Q4)	20.0	8.9	+ 11.1	2.56	[0.73, 9.03]	.230
	Difficulty: lack of time to prepare (Q4)	13.3	22.2	-8.9	0.54	[0.18, 1.63]	.409
4. Social norms	Most people approve: yes (Q5)	77.8	35.6	+ 42.2	6.34	[2.50, 16.09]	< .001
	Most people approve: possibly (Q5)	8.9	31.1	-22.2	0.22	[0.06, 0.72]	.016
	Most people approve: no (Q5)	2.2	17.8	-15.6	0.11	[0.01, 0.88]	.030
	Nobody disapproves (Q6B)	71.1	42.2	+ 28.9	3.37	[1.40, 8.08]	.010
	Employers/professionals disapprove (Q6B)	0.0	15.6	-15.6	0.06†	[0.00, 1.02]	.012
5. Access	Access to opportunities very difficult (Q8)‡	42.2	26.7	+ 15.6	2.01	[0.83, 4.88]	.183
	Cost of preparation very/fairly difficult (Q9)‡	55.6	48.9	+ 6.7	1.31	[0.57, 2.99]	.673
	Suggests facilitating access to internships (Q10)	17.8	33.3	-15.6	0.43	[0.16, 1.16]	.146

Note. pp = percentage points; OR = odds ratio relative to Non-Doers. p-values are two-sided Fisher’s exact tests. † 0.5 continuity correction used for OR estimation where a cell was zero. ‡ Item wording differed between groups (experienced versus hypothetical or non-equivalent wording); interpret as secondary. § Non-Doer denominator = 42 because of missing/uncodable responses. After Holm correction, “most people approve: yes” was the only primary comparison remaining statistically significant (adjusted p = .012).

Determinant	Sub-factor	Doers %	Non-Doers %	Diff. (pp)	OR	95% CI	p
6. Cues for action	Receives/would like reminders often or very often (Q11)‡	26.7	42.2	-15.6	0.50	[0.20, 1.21]	.183
	Suggests career reminders and advice (Q12)	4.4	17.8	-13.3	0.22	[0.04, 1.08]	.090
7. Susceptibility/risk	Unprepared students very likely to struggle (Q13)	48.9	33.3	+ 15.6	1.91	[0.82, 4.48]	.198
	Very confident efforts will suffice (Q14)‡	35.6	53.3	-17.8	0.48	[0.21, 1.12]	.137
	Risk: lack of institutional support (Q15)	15.6	28.9	-13.3	0.45	[0.16, 1.27]	.204
8. Severity	Lacking skills would be very serious (Q17)	62.2	53.3	+ 8.9	1.44	[0.62, 3.34]	.522
	Consequence: unemployment (Q18)	35.6	46.7	-11.1	0.63	[0.27, 1.47]	.392
9. Action efficacy	Efforts very/fairly likely to build skills (Q19)	88.9	64.4	+ 24.4	4.41	[1.45, 13.42]	.012
	Efforts fairly likely to build skills (Q19)	48.9	22.2	+ 26.7	3.35	[1.34, 8.35]	.015
10. Divine assistance	God can help without thorough preparation: yes (Q20)	42.2	46.7	-4.4	0.84	[0.36, 1.92]	.832
	God can help without thorough preparation: do not know (Q20)	8.9	0.0	+ 8.9	9.87†	[0.52, 189]	.117
11. Political/institutional environment	Rules/policies hinder preparation: yes (Q21)§	42.2	33.3	+ 8.9	1.46	[0.61, 3.50]	.508
12. Culture	Open-ended items (Q22a/Q22b); descriptive only	—	—	—	—	—	—

Note. pp = percentage points; OR = odds ratio relative to Non-Doers. p-values are two-sided Fisher's exact tests. † 0.5 continuity correction used for OR estimation where a cell was zero. ‡ Item wording differed between groups (experienced versus hypothetical or non-equivalent wording); interpret as secondary. § Non-Doer denominator = 42 because of missing/uncodable responses. After Holm correction, "most people approve: yes" was the only primary comparison remaining statistically significant (adjusted p = .012).

4.4. Classification sensitivity and qualitative integration

The sensitivity analyses materially qualify the primary field-group results. In the source analysis restricted to participants whose field classification agreed with the screening rule, perceived approval and action efficacy remained differentiated, whereas the contrast in absence of opposition weakened. Under full reclassification using the screening rule, the perceived-approval contrast was no longer evident, while action efficacy remained differentiated. Thus, action efficacy appears more stable across classification assumptions, whereas the social-approval effect is more sensitive to how Doers and Non-Doers are defined. Because individual-level sensitivity estimates were not included in the source manuscript, the revised article avoids presenting unverified effect sizes for these alternative classifications.

Open-ended responses nevertheless provide useful contextual information. Family, peers, and teachers were frequently named as sources of approval; Non-Doers more often requested practical training, personalized guidance, and facilitated internships. Participants also described financial constraints, academic workload, limited information, insufficient professional experience, gender expectations, reliance on personal connections, and assumptions that a university degree alone should be sufficient for employment. Religious interpretations were heterogeneous and did not statistically distinguish the two groups.

Table 5
Integration of quantitative findings with descriptive open-response themes

Quantitative pattern	**Descriptive open-response themes**	**Interpretation**
Social approval: 77.8% of Doers vs. 35.6% of Non-Doers reported that most people approve.	Family, peers, and teachers were the most frequently named approvers; some Non-Doers described discouragement, limited information, fear of risk, or opposition from influential people.	Social legitimacy and access to supportive networks may facilitate visible engagement in preparation, but the effect is classification-sensitive.
Action efficacy: 88.9% vs. 64.4% believed preparation efforts were likely to build needed skills.	Non-Doers more often requested practical training, personalized guidance, and facilitated internships; comments also cited lack of money, workload, weak information, and lack of experience.	Visible pathways through which effort leads to skill acquisition may strengthen engagement; this finding was more robust in sensitivity analyses.
Interview skills were named more often by Non-Doers, but the comparison used non-equivalent question wording.	Participants also mentioned digital tools/AI, management, leadership, entrepreneurship knowledge, professional experience, and English.	Practical selection-stage and digital competencies merit further study, but the current item cannot support a strong between-group inference.
Divine assistance, policy constraints, and general risk/severity did not clearly distinguish groups.	Open responses described gender norms, personal connections, institutional frustrations, religious interpretations, family solidarity, and perseverance.	These factors may represent shared contextual conditions rather than determinants that distinguish who prepares in this sample.

Note. Open-response themes are descriptive and are not presented as independently validated qualitative prevalence estimates.

5. Discussion

5.1. Principal findings

This exploratory Barrier Analysis suggests that the clearest differences between field-defined Doers and Non-Doers lie less in awareness of labour-market risk and more in the perceived social and instrumental value of preparation. Doers reported more preparation activities, markedly greater perceived approval, and stronger belief that preparatory effort would build useful skills. Yet the strength of these findings is not equivalent. Perceived approval was the only comparison to survive Holm correction in the primary analysis, whereas action efficacy was the pattern that appeared more stable across alternative classification assumptions. The most defensible interpretation is therefore not that several “critical determinants” have been established, but that social support and perceived usefulness of effort are priority hypotheses for further study in Bukavu.

5.2. Social approval and career-related support

The large primary contrast in perceived approval is consistent with a broader literature showing that career behavior is embedded in social relationships. SCCT conceptualizes contextual support as an influence on self-efficacy, goals, and adaptive career action (Lent & Brown, 2013). More recent evidence strengthens this interpretation. Xiong et al. (2025), studying final-year university students, found that career-related social support was positively associated with job-search behavior and that career decision-making self-efficacy partly mediated this relationship. Jackson et al. (2025) similarly reported that social support, career confidence, and career self-management were strongly interconnected among recent graduates and were associated with better-quality transition outcomes. These studies do not validate the Bukavu effect causally, but they make the social-approval pattern theoretically plausible.

The Bukavu result should nevertheless be interpreted conservatively because the approval contrast weakened under full reclassification. This sensitivity is important: perceived approval may partly reflect how participants were originally labeled, differential recall, or the possibility that taking visible preparatory actions itself generates social recognition. The cross-sectional design cannot distinguish whether approval promotes preparation, preparation elicits approval, or both processes reinforce each other. A stronger future design would measure career-related social support with validated multi-item scales and follow students prospectively through the transition to work.

5.3. Action efficacy, self-efficacy, and career self-management

The distinction between general self-confidence and action efficacy is one of the most informative findings. General confidence in eventually obtaining a job or starting a business was almost identical between groups, whereas Doers were more likely to believe that concrete preparation would build the skills they needed. This pattern fits the social-cognitive distinction between broad optimism and behavior-specific outcome expectations. Lent and Brown’s (2013) career self-management model proposes that adaptive career behavior is shaped by self-efficacy and expectations that particular actions will produce useful outcomes. Recent career self-management research also shows that specific behaviors—such as human-

capital development, planning, networking, and using contacts—relate differentially to employability resources (Wilhelm et al., 2024).

This interpretation also explains why high awareness of unemployment risk did not reliably separate groups. Knowing that insufficient preparation is dangerous is not the same as believing that one's own actions can alter the trajectory. The more robust action-efficacy pattern across classification sensitivity analyses suggests that interventions may need to make the pathway from effort to capability visible—for example through structured feedback, skill certification, mentored projects, mock recruitment exercises, and internships that allow students to experience measurable progress. However, because the current measure was a single questionnaire item, future work should distinguish response efficacy, career decision-making self-efficacy, and job-search self-efficacy using validated instruments.

5.4. Internships, networking, and visible pathways into work

Internships were the most common preparation activity and were more frequently reported by Doers. This pattern is consistent with African evidence that experiential and network-based interventions can ease early labour-market transitions. In Rwanda, Brudevold-Newman and Ubfal (2024) found that a short soft-skills program accelerated entry into employment during the COVID-19 disruption, with effects apparently driven by expansion and more intensive use of job networks, although the employment advantage dissipated as the control group caught up. A separate Rwandan randomized field experiment found modest short-term gains in work readiness and networking after employability training but no sustained medium-term effect on employment or income (Alcid et al., 2023). Together, these studies caution against assuming that preparation automatically creates jobs while still supporting the value of networking and work-readiness resources during transition.

Evidence from Nigeria also links work-integrated learning to graduate employability, partly through digital literacy (Adegbite, 2024). In the DRC, Muepu et al. (2024) reported that an interdisciplinary university program combining English, business, and computing was perceived by employers and graduates as relevant to labour-market needs and emphasized internships and practical skills. Nsenge et al. (2023) likewise identified academic competencies, graduate-employer relationships, and university employability strategies—including internship linkages—as components of Congolese graduate employability. These studies support the practical relevance of the requests voiced by Bukavu Non-Doers for brokered internships, practical training, and personalized guidance.

5.5. Structural constraints in the DRC and sub-Saharan African labour market

The similarity between groups on cost, access, time, and institutional barriers should not be read as evidence that these constraints are unimportant. Rather, they may be background conditions shared by both Doers and Non-Doers. The ILO's 2024 regional assessment shows that sub-Saharan African youth continue to face high NEET rates and widespread insecure employment, while structural transformation has not created skilled jobs at the same pace as expansion of education (ILO, 2024a, 2024b). In such contexts, career preparation may improve relative positioning without removing labour-demand constraints.

This distinction between behavioral readiness and structural opportunity is particularly important for the DRC. Congolese employability research has emphasized socio-political context, graduate-employer relationships, practical competencies, and institutional links between universities and employers (Muepu et al., 2024; Nsenge et al., 2023). The World Bank's 2026 skills strategy for the DRC similarly places strong emphasis on market-responsive curricula, apprenticeships and internships, private-sector participation, and entrepreneurship support (World Bank, 2026). The Bukavu findings therefore fit a dual-level interpretation: individual and social resources may influence whether students prepare, but the returns to preparation remain constrained by the availability and quality of actual opportunities.

5.6. Culture, institutional context, and perceived divine assistance

The revised analysis does not support claims that perceived divine assistance, political rules, or cultural beliefs were statistically decisive differences between groups. This is a substantive correction to the earlier manuscript, which overstated divine will and cues for action in the abstract. In the present data, religious interpretations were heterogeneous and should be understood as context-specific meaning systems rather than as a deficit explanation for non-preparation. Likewise, cultural and institutional themes—including gender expectations, reliance on personal connections, and the belief that a degree should be sufficient—appeared in open responses but were not measured with validated scales or equivalent closed items. They are therefore best treated as hypotheses for future research rather than as established prevalence estimates.

5.7. Strengths and limitations

The study has several strengths. It addresses an under-researched transition context in eastern DRC, focuses on concrete preparation behaviors rather than employment status alone, reports effect sizes and confidence intervals, distinguishes a practical Barrier Analysis threshold from statistical significance, applies Holm correction for multiple testing, and explicitly discloses classification and measurement problems instead of obscuring them. The open-response material also helps explain why social approval and action efficacy may matter in practice.

The limitations are substantial and define the boundaries of inference. First, purposive sampling and the fixed 45/45 group allocation preclude population prevalence estimates and limit generalizability. Second, the original Doer-Non-Doer labels were discordant with a later screening rule for 20 of 90 participants, and the exact field-classification algorithm was not fully documented. Third, several items differed in wording between groups, reducing measurement equivalence. Fourth, educational status was missing or nonspecific for two-thirds of each group, and the manuscript contains no usable information on age, sex, socioeconomic position, discipline, or other potential confounders. Fifth, the open-ended component lacked documented double coding and inter-rater reliability. Sixth, the sample is small for numerous comparisons, producing wide confidence intervals and unstable estimates around rare responses. Finally, the cross-sectional design prevents causal or directional conclusions. These limitations mean that the study should be framed as a formative, exploratory analysis that identifies hypotheses and intervention priorities rather than as a definitive model of graduate employability in Bukavu.

5.8. Implications for universities, employers, and future research

The findings support a pragmatic emphasis on visible, supported pathways into career preparation. Universities could strengthen internship brokerage, employer partnerships, CV and interview clinics, mentoring, digital-skills workshops, entrepreneurship support, and structured opportunities to build and use professional networks. Interventions should not focus only on awareness because both groups already recognized the risks of inadequate preparation. Instead, programs should increase students' confidence that specific actions can generate useful skills and should involve family, peers, alumni, teachers, and employers where appropriate to strengthen career-related social support.

For research, the immediate priority is replication with a prospectively defined behavioral outcome, probability-based or broader multi-institution sampling where feasible, validated SCCT measures, complete demographic covariates, and longitudinal follow-up from final year into employment, entrepreneurship, unemployment, or further education. A future study could test whether career-related social support predicts preparation through self-efficacy and outcome expectations, and whether internships or networking mediate the relationship between preparation and labour-market entry. Such a design would move the current findings from formative Barrier Analysis toward stronger explanatory and causal evidence.

6. Conclusion

Among final-year university students and recent graduates in Bukavu, field-defined Doers reported more career-preparation activities than Non-Doers. The strongest primary contrast was perceived social approval, while the belief that preparatory effort would build needed skills showed greater stability across classification sensitivity analyses. By contrast, general confidence, awareness of risk, cost and access constraints, institutional barriers, and perceived divine assistance did not consistently distinguish the groups. These results suggest that career preparation in this setting may depend not only on awareness of difficult labour-market conditions but also on social support and credible expectations that effort can produce useful capabilities. Because of purposive sampling, classification discordance, incomplete participant information, and cross-sectional measurement, the evidence is exploratory. The study nevertheless identifies clear priorities for better-designed longitudinal research and for career services that combine practical experience, networking, mentoring, and visible skill development with attention to the structural constraints of the Congolese labour market.

Declarations

Ethics approval and consent to participate

The study protocol was approved by the Ethics Committee of the Université du Cinquatenaire de Lwiro-Kabare (approval No. 20223UNI50KAB 0001w). Conducted in accordance with the Declaration of Helsinki, this exploratory barrier analysis examined behavioral correlates of career preparation among final-year university students and recent graduates in Bukavu, Democratic Republic of the Congo. Participants

provided informed consent before structured interviews. Data were collected anonymously, treated confidentially, and used exclusively for research.

Consent for publication

Not applicable unless identifiable participant material is included. If quotations are retained, confirm that consent covered anonymous publication of open-text responses.

Consent for publication:

Not applicable.

Competing interests:

The authors declared no conflicts of interest regarding the research, authorship, or publication of this article.

Funding:

The authors received no financial support for the research, authorship, or publication of this article.

Author Contribution

Ethics approval and consent to participateThe study protocol was approved by the Ethics Committee of the Université du Cinquatenaire de Lwiro-Kabare (approval No. 20223UNI50KAB 0001w). Conducted in accordance with the Declaration of Helsinki, this exploratory barrier analysis examined behavioral correlates of career preparation among final-year university students and recent graduates in Bukavu, Democratic Republic of the Congo. Participants provided informed consent before structured interviews. Data were collected anonymously, treated confidentially, and used exclusively for research.Consent for publicationNot applicable unless identifiable participant material is included. If quotations are retained, confirm that consent covered anonymous publication of open-text responses.Consent for publication: Not applicable. Availability of data and materials: All data generated and analyzed for this study is included in this article. Competing interests: The authors declared no conflicts of interest regarding the research, authorship, or publication of this article. Funding: The authors received no financial support for the research, authorship, or publication of this article. Authors' contributions: Bantu Rusagara Jack: conceptualization of the study and the coordination , data collection and manuscript drafting ; Byamungu Wanguwabo David: supervised the entire research process and contributed to data analysis, manuscript drafting, and critical revision, thereby ensuring the scientific coherence and academic quality of the final document

Availability of data and materials:

All data generated and analyzed for this study is included in this article.

References

1. Adegbite WM. Unpacking mediation and moderating effect of digital literacy and life-career knowledge in the relationship between work-integrated learning and graduate employability. Social Sci Humanit Open. 2024;10:101161. https://doi.org/10.1016/j.ssaho.2024.101161.
2. Alcid A, Bulte E, Lensink R, Sayinzoga A, Treurniet M. Short- and medium-term impacts of employability training: Evidence from a randomised field experiment in Rwanda. J Afr Econ. 2023;32(3):296–328. https://doi.org/10.1093/jae/ejac011.
3. Bandura A. Self-efficacy: The exercise of control. W. H. Freeman; 1997.
4. Brudevold-Newman A, Ubfal D. Soft-skills, networking, and workforce entry: Impacts of a training program for recent graduates in Rwanda. Labour Econ. 2024;91:102650. https://doi.org/10.1016/j.labeco.2024.102650.
5. Holm S. A simple sequentially rejective multiple test procedure. Scand J Stat. 1979;6(2):65–70.
6. International Labour Organization. Global employment trends for youth 2024: Decent work, brighter futures. Int Labour Office. 2024a. https://doi.org/10.54394/ZUUI5430.
7. International Labour Organization. (2024b). Global employment trends for youth 2024: Sub-Saharan Africa. International Labour Office. https://doi.org/10.54394/QJUV5544
8. Jackson D, Lambert C, Tofa M, Bridgstock R, Sibson R. Career resources and securing quality work: Graduate perspectives. Stud Continuing Educ. 2025;47(2):436–56. https://doi.org/10.1080/0158037X.2024.2410182.
9. Juan A, Cooper A, Mathambo V, Lawana N, Mhlanga N, Jowi JO. Graduate transitions in Africa: Understanding strategies of livelihood generation for universities to better support students. J Student Affairs Afr. 2024;11(2):57–72. https://doi.org/10.24085/jsaa.v11i2.4915.
10. Kittle B. A practical guide to conducting a Barrier Analysis. 2nd ed. Helen Keller International; 2017.
11. Lent RW, Brown SD. Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span. J Couns Psychol. 2013;60(4):557–68. https://doi.org/10.1037/a0033446.
12. Muepu DM, Buhendwa FM, Mumbanza JK, Kabongo JM, Kinguangu D-MN, Kutangila DM. Assessment of an English and Business Computer Science program in bridging academia and job market in the Democratic Republic of Congo. Discover Educ. 2024;3:123. https://doi.org/10.1007/s44217-024-00224-5.
13. Nsenge MH, Waruguru ML, Nyaga MS. Exploratory factor analysis of Congolese information technology graduates' employability: Towards sustainable employment. SAGE Open. 2023;13(4). https://doi.org/10.1177/21582440231210109.
14. Wilhelm F, Hirschi A, Schläpfer D. The multidimensional nature of career self-management behaviours and their relation to facets of employability. J Occup Organizational Psychol. 2024;97(1):342–75. https://doi.org/10.1111/joop.12474.

15. World Bank. Skills for Economic Transformation and Jobs Program in Eastern and Southern Africa (SET4Jobs): Democratic Republic of Congo [Fact sheet]. World Bank; 2026.
16. Xiong Z, Zeng M, Xu Y, Gao B, Shen Q. Linking career-related social support to job search behavior among college students: A moderated mediation model. Behav Sci. 2025;15(3):260. https://doi.org/10.3390/bs15030260.