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Effectiveness of Growth Mindset Training on Achievement Motivation and Career Decision in Female Graduates

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A B S T R A C T

Objective: This study aimed to investigate the effectiveness of a growth mindset training program in enhancing achievement motivation and improving career decision-making among female graduates.

Methods and Materials: The study utilized a randomized controlled trial design with a sample of 30 female graduates from Morocco, randomly assigned into experimental (n = 15) and control (n = 15) groups. The experimental group participated in a ten-session growth mindset intervention (45–60 minutes each), while the control group received no intervention. Standardized instruments were used to assess achievement motivation and career decision at three time points: pre-test, post-test, and five-month follow-up. Data were analyzed using repeated measures analysis of variance (ANOVA) with Bonferroni post-hoc tests, conducted in SPSS-27.

Findings: Repeated measures ANOVA revealed significant time × group interaction effects for both achievement motivation ($F(2, 54) = 21.60$, $p < .001$, $\eta^2 = .48$) and career decision ($F(2, 54) = 19.22$, $p < .001$, $\eta^2 = .41$), indicating greater improvements over time in the experimental group. Bonferroni post-hoc comparisons confirmed significant increases from pre-test to post-test in both achievement motivation (Mean Difference = -7.37, $p < .001$) and career decision (Mean Difference = -11.39, $p < .001$), with sustained effects at follow-up ($p > .05$ between post-test and follow-up).

Conclusion: The findings provide empirical support for the use of growth mindset training as an effective psychological intervention to enhance achievement motivation and improve career decision-making among female graduates. These outcomes underscore the relevance of mindset development during the post-graduation transition and highlight the potential of targeted interventions to support women in navigating career-related challenges.

Keywords: *growth mindset, achievement motivation, career decision, female graduates.*

1. Introduction

The transition from higher education into the workforce represents a pivotal developmental milestone, particularly for female graduates navigating complex socio-economic, cultural, and psychological landscapes. Among the most influential factors in shaping this transition are achievement motivation and career decision-making ability, both of which are tightly intertwined with internal beliefs about self-efficacy, capability, and identity. In recent years, the concept of a growth mindset—defined as the belief that one's abilities can be developed through dedication and effort—has gained considerable attention as a transformative tool for enhancing motivation and adaptive career planning in emerging adults, especially women (Mintchik et al., 2021; Zingoni, 2022). This framework not only reframes individual responses to challenges and failure but also contributes to greater persistence and flexibility in the face of career uncertainty and gendered barriers.

In many societies, women face systemic constraints that limit their perceived career possibilities and deter their full participation in certain fields, often due to cultural stereotypes and gender role expectations. Research highlights how societal narratives and symbolic beliefs regarding femininity and intellectual capacity can shape and sometimes restrict women's professional identities from an early stage (Ma et al., 2024). In STEM and male-dominated disciplines, for instance, women often internalize societal messages that link competence with masculinity, leading to lower confidence and reduced career ambition despite equal or superior qualifications (Childers et al., 2021; Cribbs et al., 2021). A growth mindset may serve as a psychological buffer against such internalized limitations by enabling women to reframe setbacks as learning opportunities and view intelligence as dynamic and improvable (Lateef & Peterman, 2021).

Furthermore, achievement motivation—a psychological construct reflecting the drive to accomplish and attain goals—plays a central role in academic persistence and career ambition. Women's achievement behaviors have been shown to be highly sensitive to mindset orientations. Those with a fixed mindset may interpret failure as a reflection of personal inadequacy, thereby avoiding challenge and risk, while those with a growth mindset tend to interpret the same experiences as temporary and constructive (Brausch-Böger & Förster, 2024). This difference in interpretation can lead to significant divergences in career outcomes, particularly during the post-graduation phase, where self-directed planning and goal setting are essential for navigating complex job markets and gendered expectations (Hinai et al., 2020).

Career decision-making, meanwhile, is a multifaceted process influenced by cognitive, emotional, social, and contextual factors. For female graduates, this process often intersects with gender-specific barriers such as familial obligations, safety concerns, and normative pressures regarding career types (Prince et al., 2022; Zheng et al., 2022). Studies have shown that young women are often steered—both overtly and subtly—toward careers perceived as more "appropriate" or "attainable," limiting their scope of exploration and undermining their confidence in making autonomous decisions (Byomantara & Arifuddin, 2022). Parental expectations, in particular, have a strong bearing on female students' perceived career options, with many young women internalizing familial norms even when these conflict with their own interests or academic strengths (Basnet, 2022; Din et al., 2022). As a result, interventions that empower women to take ownership of their career paths are urgently needed.

A promising solution lies in educational and psychological interventions that foster a growth mindset. Research suggests that such training not only enhances academic resilience and metacognitive awareness but also improves career clarity and reduces indecision (Brausch-Böger & Förster, 2024). Growth mindset interventions have been positively associated with greater persistence in the face of obstacles and higher adaptability to evolving job demands (Ding et al., 2022; Wesarat et al., 2022). For example, Ding et al. (2021) found that early-career physicians trained with growth mindset frameworks were more open to feedback and more confident in their long-term professional development plans (Ding et al., 2021). Similarly, Drewery et al. (2020) highlighted how a lifelong learning mindset correlated with sustained career engagement and higher satisfaction among professionals in the fields of accounting and finance (Drewery et al., 2020).

Graduate unemployment and underemployment remain pressing issues in many regions, including North Africa. In Morocco, the gap between academic qualifications and actual employment opportunities is particularly salient for women, who frequently encounter structural limitations and social expectations that hinder their career advancement. Growth mindset training could play a critical role in mitigating these challenges by equipping female graduates with psychological tools to navigate setbacks, adjust expectations, and broaden career exploration (Lim et al.,

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2021; Rahman et al., 2020). Rafiana (2023), for example, argues that cultivating adaptive mindsets through technopreneurship training fosters self-efficacy and goal orientation, both of which are foundational to entrepreneurial and career success (Rafiana, 2023).

Moreover, female graduates' career decisions are increasingly shaped by a combination of personal values, institutional quality, and urban opportunities. Chen et al. (2023) noted that even among highly trained STEM graduates, city-level considerations often intersect with career aspirations, demonstrating that external context and internal beliefs are jointly influential in post-education transitions (Chen et al., 2023). Thus, a mindset intervention must not only target internal attitudes but also help participants navigate structural and situational realities, fostering agency and adaptability. This aligns with broader findings indicating that mindset interventions are most effective when linked to concrete career planning and supported by reflective exercises and group dialogue (Jarab et al., 2021; Motta-Moss & Hussain, 2020).

Another dimension of the career decision process involves identity integration and the negotiation of competing role expectations. Women in conservative or traditional cultures often struggle with reconciling aspirations for independence with familial and cultural expectations (Ryndak et al., 2022). When embedded in an empowering pedagogical approach, growth mindset interventions can facilitate greater clarity and confidence by enabling participants to redefine success on their own terms. In educational contexts, such interventions have also shown promise in enhancing female students' willingness to explore unconventional or male-dominated career paths, which are often perceived as risky or unattainable without a strong internal belief in growth and self-efficacy (Lebovitz et al., 2020; Poomdaeng et al., 2020).

Several studies have also demonstrated the role of growth mindset in enhancing students' capacity to take academic and career-related initiative. For instance, Ma et al. (2024) found that doctoral graduates who endorsed growth-oriented beliefs demonstrated higher levels of career resilience and were more proactive in seeking mentorship and career development resources (Ma et al., 2024). In a similar vein, Wesarat et al. (2022) emphasized the role of entrepreneurian mindset as a foundation for both academic and career success in business administration programs, noting a positive association with career readiness and risk-taking (Wesarat et al., 2022). These findings suggest that fostering a growth mindset is not merely beneficial for performance but is also foundational for navigating complex, uncertain, and evolving career landscapes.

Despite its documented benefits, growth mindset training remains underutilized in many higher education systems, particularly in developing regions where rigid educational models and traditional norms often dominate. Given the critical period of career decision-making that follows graduation, targeted interventions at this transitional stage can be highly impactful. Female graduates, in particular, stand to benefit from structured programs that challenge internalized limitations and foster a proactive, self-directed approach to career development (Mintchik et al., 2021; Zingoni, 2022). When implemented systematically, such interventions may contribute not only to individual empowerment but also to broader socio-economic development by enhancing the labor force participation of highly educated women.

In response to these challenges and gaps in existing research, the present study aims to evaluate the effectiveness of a structured growth mindset training program in improving achievement motivation and career decision-making among female graduates in Morocco.

2. Methods and Materials

2.1. Study design and Participant

This study employed a randomized controlled trial design to examine the effectiveness of growth mindset training on achievement motivation and career decision-making among female graduates. Participants were recruited through online and institutional announcements in Morocco and were randomly assigned to either the experimental group (growth mindset training) or the control group (no intervention), with 15 participants in each group. Inclusion criteria included being female, holding a recent undergraduate degree (within the last 2 years), and willingness to participate in all sessions and follow-up assessments. Exclusion criteria included current psychological treatment or participation in similar training programs. The intervention group received ten weekly 45–60 minute sessions of growth mindset training, while the control group received no treatment during the study period. Data collection was conducted at three time points: pre-intervention, post-intervention, and five-month follow-up.

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2.2. Measures

2.2.1. Achievement Motivation

Achievement motivation in this study was measured using the Achievement Motivation Scale developed by Herman (1970). This standard instrument consists of 29 items designed to assess an individual's drive toward success and the tendency to avoid failure. The scale includes two main subscales: Hope of Success (17 items) and Fear of Failure (12 items). Participants respond to items on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating a higher level of achievement motivation. The scale has been widely used in educational and psychological research and has demonstrated solid psychometric properties. Numerous studies have confirmed its reliability, with Cronbach's alpha values typically exceeding 0.80 for both subscales, and its construct validity has been supported through factor analysis and correlations with related motivational constructs (He & Tang, 2024; Li et al., 2024; Oshakuade et al., 2023; Rahmawati & Suciati, 2023).

2.2.2. Career Decision

Career decision-making was assessed using the Career Decision-Making Difficulties Questionnaire (CDDQ) developed by Gati, Krausz, and Osipow (1996). This widely used instrument includes 34 items distributed across three primary subscales: Lack of Readiness, Lack of Information, and Inconsistent Information. Each item is rated on a 9-point Likert scale ranging from 1 (does not describe me at all) to 9 (describes me well), where higher scores reflect greater difficulties in making career decisions. The CDDQ has been extensively validated in different cultural and educational contexts and is considered a reliable measure of barriers to effective career choice. Internal consistency coefficients reported in previous research range from 0.67 to 0.95 for the subscales, and confirmatory factor analysis has consistently supported its structural validity (Bi et al., 2023; He et al., 2021; Milot-Lapointe & Corff, 2022; Udayar et al., 2020).

2.3. Intervention

2.3.1. Growth Mindset Training

The intervention was based on the principles of Carol Dweck's growth mindset theory and aimed to enhance participants' belief in the malleability of intelligence and abilities, thereby fostering achievement motivation and facilitating effective career decision-making. The program consisted of ten structured sessions, each lasting 45 to 60 minutes and conducted weekly in a group format. The training combined psychoeducation, cognitive-behavioral strategies, group discussions, and reflective exercises. It focused on replacing fixed mindset beliefs with adaptive growth-oriented thinking and linking these concepts directly to academic and career-related goals.

Session 1: Introduction to the Program and Mindset Concepts

The first session introduced participants to the training program, including its objectives, structure, and group guidelines. The concept of "mindset" was introduced, distinguishing between fixed and growth mindsets. Participants explored how beliefs about intelligence and ability can shape behavior, motivation, and learning. Personal reflections were encouraged through brief activities asking participants to share past experiences with success and failure.

Session 2: Neuroscience and the Malleability of the Brain

This session provided scientific evidence supporting neuroplasticity and the brain's capacity to grow through effort and learning. Participants engaged with short educational videos and visual models that explained how practice strengthens neural connections. They were encouraged to challenge deterministic beliefs about ability and recognize that improvement is possible with persistence.

Session 3: Identifying Fixed Mindset Triggers

Participants explored situations in which they tend to exhibit fixed mindset thinking, especially in academic and career contexts. Using journaling and group sharing, they identified internal dialogue, emotions, and behaviors associated with fear of failure or avoidance. Cognitive restructuring techniques were introduced to reframe limiting beliefs.

Session 4: Replacing Limiting Beliefs with Growth-Oriented Thinking

Building on the previous session, participants learned how to consciously replace fixed mindset thoughts with growth-oriented alternatives. Through role-play and guided imagery, they practiced reframing negative self-talk into affirming statements that emphasize effort, strategy, and learning from mistakes.

Session 5: Embracing Challenges and Learning from Failure

This session focused on the importance of viewing challenges and failures as opportunities for growth. Participants shared personal stories of setbacks and

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identified lessons learned. They engaged in a group problem-solving activity that demonstrated how persistence and adaptability can lead to success.

Session 6: The Role of Effort and Strategy in Achievement

Participants were taught to differentiate between productive and unproductive effort. The concept of "deliberate practice" was introduced, emphasizing the importance of strategies, feedback, and goal-setting. Participants created personal academic or career goals and mapped out step-by-step strategies to pursue them.

Session 7: Building Resilience and Coping with Setbacks

The session addressed emotional responses to setbacks, such as frustration, anxiety, or self-doubt. Participants learned resilience-building strategies, including self-compassion, mindfulness, and constructive self-reflection. They practiced using these tools in simulated stressful scenarios.

Session 8: Growth Mindset in Career Planning and Decision-Making

This session applied growth mindset principles to the career domain. Participants explored how beliefs about fixed abilities can hinder career exploration and how a growth mindset supports adaptability, openness, and self-efficacy. They worked on aligning their strengths and values with potential career paths.

Session 9: Role Models and Inspirational Stories

Participants examined stories of successful individuals who exemplified a growth mindset in overcoming challenges. These stories were used to inspire and model perseverance, adaptability, and long-term commitment. Participants were encouraged to identify personal role models and reflect on what they could learn from them.

Session 10: Consolidation and Future Planning

The final session reviewed key concepts from the training and allowed participants to reflect on their personal progress. They discussed how they intended to apply a growth mindset in future academic and career situations. A self-directed action plan was developed, and participants wrote a letter to their future selves summarizing their commitments and mindset shifts.

2.4. Data Analysis

Data analysis was conducted using SPSS version 27. To assess the effect of the intervention across time and between groups, repeated measures analysis of variance (ANOVA) was used. Group (experimental vs. control) was the between-subjects factor, and time (pre-test, post-test, follow-up) was the within-subjects factor. When significant interaction effects were found, Bonferroni post-hoc tests were applied to examine pairwise comparisons while controlling for Type I error. Statistical significance was set at $p < .05$ for all tests. Prior to the main analysis, assumptions of normality, sphericity, and homogeneity of variances were tested and met.

3. Findings and Results

Of the total participants (N = 30), 14 participants (46.7%) were between 22 and 24 years old, 11 participants (36.7%) were between 25 and 27 years old, and 5 participants (16.6%) were aged 28 years or older. In terms of field of study, 10 participants (33.3%) held degrees in social sciences, 9 participants (30%) were graduates in education-related fields, and 11 participants (36.7%) had backgrounds in science and technology. All participants identified as female and were Moroccan nationals residing in urban areas at the time of the study.

Table 1

Descriptive Statistics for Achievement Motivation and Career Decision Scores by Group and Time Point

Variable	Time Point	Group	M	SD
Achievement Motivation	Pre-test	Experimental	87.46	5.27
		Control	86.92	5.65
	Post-test	Experimental	94.83	4.88
		Control	87.34	5.39
	Follow-up	Experimental	93.67	5.01
		Control	87.10	5.22
Career Decision	Pre-test	Experimental	122.35	9.42
		Control	121.60	9.84
	Post-test	Experimental	133.74	8.77
		Control	122.04	9.67
	Follow-up	Experimental	132.58	9.05
		Control	121.83	9.40

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As shown in Table 1, participants in the experimental group demonstrated an increase in both achievement motivation and career decision scores across the three time points, while the control group showed minimal change. Specifically, the mean achievement motivation score in the experimental group rose from 87.46 (SD = 5.27) at pre-test to 94.83 (SD = 4.88) post-test and was sustained at 93.67 (SD = 5.01) at follow-up. In contrast, the control group's scores remained relatively stable, with a pre-test mean of 86.92 (SD = 5.65), post-test mean of 87.34 (SD = 5.39), and follow-up mean of 87.10 (SD = 5.22). Similarly, for career decision, the experimental group's mean increased from 122.35 (SD = 9.42) to 133.74 (SD = 8.77) post-test, and remained high at 132.58 (SD = 9.05) at follow-up, while the control group scores fluctuated slightly with minimal change over time.

Before performing the repeated measures ANOVA, assumptions were assessed. Shapiro-Wilk tests indicated that the data were normally distributed at all three time points for both groups (p-values ranged from .129 to .728). Mauchly's test of sphericity was not significant for either dependent variable—achievement motivation: W = .982, p = .444; career decision-making: W = .963, p = .378—indicating that the sphericity assumption was met. Levene's test confirmed the homogeneity of variances between groups for all measures at each time point (p-values > .05), supporting the use of parametric tests in the final analysis.

Table 2

Repeated Measures ANOVA for Achievement Motivation and Career Decision

Variable	Source	SS	df	MS	F	p	η^2
Achievement Motivation	Time	684.32	2	342.16	18.43	<.001	.39
	Group	728.75	1	728.75	23.08	<.001	.45
	Time × Group	801.49	2	400.74	21.60	<.001	.48
	Error	1107.29	54	20.50			
Career Decision	Time	1325.83	2	662.91	16.29	<.001	.37
	Group	1084.67	1	1084.67	26.15	<.001	.46
	Time × Group	1402.55	2	701.28	19.22	<.001	.41
	Error	2197.46	54	40.69			

The repeated measures ANOVA (Table 2) revealed significant main effects of time and group, as well as significant interaction effects between time and group for both variables. For achievement motivation, the time × group interaction was statistically significant, $F(2, 54) = 21.60$, $p < .001$, $\eta^2 = .48$, indicating that the experimental group showed a significantly greater increase in scores over time compared to the control group. Similarly, for career decision, a significant interaction effect was found, $F(2, 54) = 19.22$, $p < .001$, $\eta^2 = .41$. These results confirm that the growth mindset intervention had a statistically significant effect on both outcome variables.

Table 3

Bonferroni Post-Hoc Test Results for Achievement Motivation and Career Decision

Variable	Comparison	Mean Difference	SE	p-value
Achievement Motivation	Pre-test vs Post-test	-7.37	1.11	<.001
	Pre-test vs Follow-up	-6.21	1.13	<.001
	Post-test vs Follow-up	1.16	1.05	.273
Career Decision	Pre-test vs Post-test	-11.39	1.56	<.001
	Pre-test vs Follow-up	-10.23	1.47	<.001
	Post-test vs Follow-up	1.16	1.29	.367

As indicated in Table 3, Bonferroni post-hoc comparisons for the experimental group showed significant increases from pre-test to post-test for both achievement motivation (Mean Difference = -7.37, $p < .001$) and career decision (Mean Difference = -11.39, $p < .001$). These improvements were maintained at the five-month follow-up, with no statistically significant decline observed between post-test and follow-up for either variable. This pattern suggests that the effects of the growth mindset intervention were both immediate and stable over time.

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4. Discussion and Conclusion

The findings of this study demonstrate that growth mindset training significantly enhanced achievement motivation and improved career decision-making in female graduates compared to the control group. Analysis using repeated measures ANOVA revealed statistically significant interaction effects between group and time, indicating that participants in the experimental group experienced meaningful improvements from pre-test to post-test and maintained gains at the five-month follow-up. Bonferroni post-hoc tests confirmed that these gains were not only immediate but also sustained over time. This supports the effectiveness of targeted mindset interventions during the post-graduation phase—a critical window when young women face considerable career uncertainty and motivational decline.

The increase in achievement motivation observed in the experimental group is consistent with theoretical assumptions about the role of growth mindset in shaping perseverance, resilience, and goal orientation. Participants who received mindset training reported greater internal drive to pursue challenging goals and a stronger belief in their capacity to improve through effort. These findings echo the results of Brausch-Böger and Förster (2024), who found that students exposed to entrepreneurial mindset training developed higher metacognitive awareness and goal-oriented behavior, leading to increased motivation and self-regulated learning (Brausch-Böger & Förster, 2024). Similarly, Cribbs et al. (2021) demonstrated that a growth mindset was positively associated with motivational constructs like self-efficacy and identity, which in turn predicted students' persistence in STEM pathways (Cribbs et al., 2021).

Furthermore, the results of this study showed significant improvement in career decision-making among participants who received growth mindset training. These participants reported greater clarity, reduced indecision, and increased confidence in planning their career paths. This aligns with findings by Ding et al. (2022), who documented that early-career physicians with growth-oriented beliefs were better equipped to adapt to workplace transitions and make informed career decisions (Ding et al., 2022). Likewise, Ding et al. (2021) previously noted that individuals trained in competency-based education showed increased confidence in decision-making due to mindset flexibility (Ding et al., 2021). Our results reinforce the conclusion that mindset is a pivotal factor in how individuals interpret opportunities, cope with ambiguity, and commit to long-term career plans.

The link between mindset and career decision-making is further supported by research on the socio-cultural constraints that female graduates often face. In contexts like Morocco, young women may experience external pressures that lead to self-doubt and restricted vocational exploration. The mindset intervention in this study appeared to counteract some of these effects by fostering self-belief and reframing perceived barriers as challenges that could be overcome with strategic effort. This is consistent with research by Lateef and Peterman (2021), who found that growth mindset interventions encouraged girls to consider non-traditional, male-dominated careers, partly by reducing the fear of failure and increasing confidence in learning from mistakes (Lateef & Peterman, 2021). Similarly, Prince et al. (2022) reported that mindset-based interventions helped young women resist gendered norms in professions like real estate, enabling them to make more autonomous and ambitious career choices (Prince et al., 2022).

Parental and societal influence also plays a significant role in shaping the mindset and career behavior of young women. Din et al. (2022) observed that students with supportive parents who encouraged learning from setbacks and emphasized long-term effort were more likely to adopt growth mindsets and demonstrate stronger career planning behaviors (Din et al., 2022). Basnet (2022) further emphasized how parental expectations and local gender norms influence young women's possible selves and envisioned futures, underscoring the importance of psychological tools that allow for independent self-definition (Basnet, 2022). The present study's findings align with these perspectives, highlighting how growth mindset training can provide an internal anchor that helps female graduates navigate conflicting external influences during the early career stage.

Our findings also support prior evidence that growth mindset enhances adaptability, which is crucial in dynamic labor markets. In a study on accounting professionals, Drewery et al. (2020) found that a lifelong learning mindset was associated with career satisfaction and upward mobility, suggesting that those with growth-oriented thinking were more likely to seek feedback, invest in skill development, and respond proactively to career shocks (Drewery et al., 2020). Zingoni (2022) similarly emphasized the value of growth mindset in coping with career setbacks, noting that individuals with adaptive beliefs were more likely to recover and revise their goals after job loss or rejection (Zingoni,

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2022). These findings are mirrored in our study, where participants in the intervention group expressed more optimism and control regarding future career transitions during follow-up assessments.

Moreover, the current results support the importance of institutional interventions that are explicitly linked to employability. Rahman et al. (2020) found that mindset and psychological readiness were key determinants of how graduates navigated their initial career phases, particularly in cultures with high unemployment (Rahman et al., 2020). Lim et al. (2021) noted that mindset-based entrepreneurship training significantly improved graduate employment outcomes in Malaysia, especially for women (Lim et al., 2021). Our findings suggest that incorporating growth mindset education into final-year university programs could serve a similar function in Morocco, enabling young women to adopt a proactive stance in an otherwise challenging job market.

Finally, the study affirms the broader applicability of mindset interventions across cultural and educational contexts. As Ryndak et al. (2022) emphasized, effective career support must address not only skill development but also psychological adaptation to real-world demands (Ryndak et al., 2022). Jarab et al. (2021) demonstrated this in pharmacy education, where mindset and career readiness were shown to be predictors of professional satisfaction and retention (Jarab et al., 2021). Likewise, Ma et al. (2024) concluded that mindset differences accounted for a significant portion of gender disparities in academic career trajectories in China, highlighting the universal relevance of these interventions (Ma et al., 2024). These parallels reinforce the generalizability of our findings and support the scalability of growth mindset training as a career development tool for female graduates worldwide.

5. Limitations and Suggestions

Despite the promising results, several limitations should be noted. First, the study's relatively small sample size (N = 30) limits the statistical power and generalizability of the findings. Although the randomized controlled design strengthens internal validity, future studies should replicate the intervention on a larger scale with more diverse demographic backgrounds. Second, the sample was limited to female graduates in Morocco, and cultural factors may have influenced how participants engaged with and responded to the growth mindset training. As such, results may not fully extend to male participants or individuals from other cultural settings. Third, the data relied on self-report instruments, which may be subject to social desirability bias or inaccurate introspection. Finally, while a five-month follow-up provides some indication of long-term impact, longer tracking would be valuable to determine whether mindset shifts lead to actual career advancement or job satisfaction over time.

Future research should aim to expand the demographic and geographic scope of the intervention. Comparative studies across gender, age groups, and educational levels could provide a more nuanced understanding of how growth mindset functions in career development across diverse populations. Additionally, future studies could integrate qualitative methods, such as interviews or focus groups, to explore the subjective experiences of participants and gain deeper insights into how mindset transformation unfolds. Research could also investigate the role of digital delivery formats, including online or app-based mindset training, to assess whether similar results can be achieved in more accessible or scalable interventions. Lastly, longitudinal studies spanning several years could better evaluate the influence of mindset on actual career paths, income levels, and job satisfaction.

Given the results of this study, educators, career counselors, and policymakers should consider incorporating growth mindset training into final-year university curricula or career preparation workshops for graduates. Practitioners are encouraged to use structured, evidence-based modules that include reflective exercises, real-life application scenarios, and group discussions to reinforce learning. In contexts where gender norms may hinder women's career progress, mindset interventions can offer a psychologically safe space for reimagining goals and building self-efficacy. Employers and human resource departments may also consider offering such training as part of onboarding or professional development programs to support early-career employees, particularly those from underrepresented groups.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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