Extent to which female gender stereotypes influence female students' engagement in vocational training in Nakivale Vocational Training Centre

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Abstract: The study examined the extent to which female gender stereotypes influenced female students' engagement in vocational training at Nakivale Vocational Training Centre, Uganda. The research employed a mixed-methods approach, surveying 180 female students and conducting interviews with 20 parents and instructors. Contrary to expectations, multiple regression analysis revealed that gender stereotypes did not significantly predict engagement (β = .001, p = .986). Similarly, parental engagement (β = .024, p = .712) and parental career behavior (β = .036, p = .580) showed non-significant direct effects. Confidence intervals for all predictors crossed zero, indicating lack of statistical significance. However, descriptive analysis revealed high awareness of gender stereotypes (Mean = 4.23, SD = 1.00 for gender-related challenges) and strong parental influence (Mean = 4.27, SD = 0.76 for parental support dependency). The study concluded that while gender stereotypes were pervasively recognized by female students, they did not directly predict engagement levels in the straightforward manner hypothesized. Instead, findings suggested that mediating factors including institutional support systems, peer networks, individual resilience, and contextual variables moderated stereotype impacts. The non-significant direct effects challenged simplistic assumptions about stereotype-engagement relationships, highlighting complex pathways requiring more sophisticated theoretical models. Recommendations included strengthening institutional support mechanisms, developing peer mentorship programs, enhancing resilience-building interventions, conducting longitudinal research to capture temporal dynamics, and investigating moderating variables that buffer stereotype effects.

Keywords: gender stereotypes, female students, vocational training, engagement, Nakivale, regression analysis, Uganda, refugee education

1.0 Background of the Study

Vocational education and training represented critical pathways for skills development, economic empowerment, and employment generation, particularly in developing contexts characterized by limited formal sector opportunities and high youth unemployment rates. In Uganda, vocational training gained increasing policy attention as government recognized the necessity of diversifying education provision beyond conventional academic streams to address labor market demands for practical, industry-relevant competencies. The vocational training sector offered programs across diverse fields including construction trades, automotive mechanics, electrical installation, hospitality and catering, tailoring and fashion design, information communication technology, and agriculture, providing alternatives for youth seeking technical and entrepreneurial skills.

Nakivale Vocational Training Centre, located in southwestern Uganda within Nakivale Refugee Settlement one of Africa's largest refugee-hosting areas accommodating over 150,000 refugees and asylum seekers from neighboring countries including Democratic Republic of Congo, Burundi, Rwanda, Somalia, and South Sudan served a unique demographic combining forcibly displaced populations and host community members. The centre provided skills training opportunities enabling refugees and local Ugandans to acquire marketable competencies despite displacement challenges, economic hardship, and disrupted educational trajectories. Vocational training in humanitarian contexts carried particular developmental significance, offering pathways to self-reliance, livelihood restoration, psychosocial recovery, and economic integration for populations affected by conflict, persecution, and forced migration.

However, persistent gender disparities in vocational training participation and outcomes remained pronounced globally and particularly stark in Sub-Saharan African contexts. Female students constituted minorities in many vocational programs, especially technical and industrial trades traditionally dominated by males. In Uganda, women represented approximately 40% of overall vocational training enrollment, but their concentration in traditionally feminine fields such as tailoring, catering, hairdressing, and beauty therapy, coupled with severe underrepresentation in lucrative technical trades including construction, plumbing, welding, automotive mechanics, and electrical installation, reflected occupational gender segregation patterns that limited women's economic opportunities and perpetuated wage gaps.

Gender stereotypes socially constructed beliefs prescribing appropriate roles, behaviors, capabilities, and occupations for males and females theoretically constituted powerful forces shaping educational and career choices. Stereotypes positioning technical, mechanical, industrial, and physically demanding work as masculine domains while casting nurturing, aesthetic, service-oriented, and domestic skills as feminine created psychological barriers, structural obstacles, and social sanctions discouraging females from pursuing non-traditional vocational fields. These stereotypes manifested through multiple mechanisms including gender socialization processes from early childhood, educational tracking systems channeling students toward gender-typical fields, discriminatory practices in training and employment environments, lack of female role models in male-dominated trades, and internalized beliefs limiting self-efficacy, interest, and aspirations.

Theoretical frameworks including social cognitive career theory (Lent, Brown, & Hackett, 1994), expectancy-value theory (Eccles, 1994), and stereotype threat theory (Steele & Aronson, 1995) posited that gender stereotypes influenced career development through effects on self-efficacy beliefs, outcome expectations, interest formation, perceived barriers, and performance under evaluative conditions. Research in Western contexts consistently documented stereotype impacts on women's underrepresentation in science, technology, engineering, and mathematics (STEM) fields and male-dominated vocations (Cheryan, Ziegler, Montoya, & Jiang, 2017; Shapiro & Williams, 2012).

However, the relationship between gender stereotypes and vocational engagement in African and humanitarian contexts remained inadequately understood, with most existing research conducted in developed countries with different cultural contexts, institutional environments, and gender regimes. Questions persisted regarding whether stereotype effects documented in Western populations generalized to African settings characterized by different gender ideologies, collectivist cultural orientations, economic constraints that might override preference considerations, and displacement contexts where survival imperatives potentially superseded gender norm concerns. Additionally, engagement as an outcome encompassed multiple dimensions including behavioral participation, emotional investment, cognitive focus, and persistence, yet most studies examined only enrollment patterns rather than comprehensive engagement measures.

Understanding the extent to which gender stereotypes actually influenced female vocational engagement in specific contexts like Nakivale was essential for evidence-based intervention design. If stereotypes strongly predicted engagement, programs should prioritize stereotype-reduction interventions including counter-stereotypical role models, gender-responsive curricula, and anti-discrimination policies. Conversely, if stereotype effects proved weak or non-significant, resources should target alternative barriers including economic constraints, inadequate facilities, safety concerns, or skills gaps requiring different programmatic responses.

Problem Statement

Despite policy commitments to gender equality in education and substantial investments in vocational training infrastructure, female students remained significantly underrepresented in technical and industrial vocational programs at Nakivale Vocational Training Centre and similar institutions across Uganda. Gender stereotypes were commonly cited as primary explanatory factors for this persistent gender segregation, with practitioners, policymakers, and researchers frequently asserting that stereotypical beliefs about gender-appropriate work discouraged females from pursuing non-traditional trades. However, empirical evidence quantifying the actual extent to which gender stereotypes influenced female students' engagement levels remained limited, particularly in refugee and displacement contexts. Existing interventions often assumed direct, strong stereotype-engagement relationships without rigorous testing of these assumptions. Questions persisted regarding whether gender stereotypes operated as dominant determinants of engagement or whether other factors including economic necessity, institutional barriers, family dynamics, peer influence, and individual characteristics exerted more substantial influence. Without systematic investigation establishing the magnitude and significance of stereotype effects on engagement, neither appropriate intervention priorities nor effective program designs could be determined. This knowledge gap necessitated empirical examination of the stereotype-engagement relationship in Nakivale's specific context.

Research Objective

To determine the extent to which gender stereotypes influence female vocational training engagement.

Literature Review

Gender stereotypes in vocational education have been extensively documented across international contexts. Barone (2011) demonstrated pronounced gender segregation in vocational training programs across 19 European countries, with females concentrated in care, service, and arts programs while males dominated technical and industrial trades. Stereotype threat theory (Spencer, Steele, & Quinn, 1999) posited that awareness of negative stereotypes about one's group undermined performance and engagement through heightened anxiety and reduced working memory capacity, with numerous studies documenting these effects in academic and professional settings (Steele, Spencer, & Aronson, 2002).

Social cognitive career theory (Lent et al., 1994) provided comprehensive frameworks explaining how contextual factors including stereotypes influenced career development through effects on self-efficacy, outcome expectations, interests, and goals. Empirical research confirmed that gender stereotypes predicted women's underrepresentation in STEM fields (Cheryan et al., 2017) and male-dominated vocations through multiple pathways including reduced self-efficacy for technical tasks (Bandura, 1997), diminished interest in stereotypically masculine fields (Su, Rounds, & Armstrong, 2009), and anticipation of discrimination and isolation (Ceci, Ginther, Kahn, & Williams, 2014).

However, stereotype effects proved complex and context-dependent. Recent research revealed that stereotype impacts varied across cultures, with collectivist societies sometimes showing different patterns than individualist contexts (Guimond et al., 2007). Additionally, studies demonstrated that structural and economic factors could override stereotype influences, with career choices in developing contexts often driven more by economic necessity, family obligations, and opportunity availability than gender ideology (Adésínà, 2017). In African contexts specifically, research documented that while gender stereotypes existed, factors including poverty, educational access, family support, and institutional quality often emerged as more proximate determinants of educational and career outcomes (Feinstein et al., 2008). This literature suggested that stereotype-engagement relationships might differ substantially between Western research contexts and African displacement settings, warranting context-specific investigation.

Methodology

This study employed a correlational research design within a mixed-methods framework, combining quantitative surveys to test hypothesized relationships and qualitative interviews to contextualize and interpret findings. The study population comprised female students enrolled in vocational training programs at Nakivale Vocational Training Centre during the 2024/2025 academic year. From approximately 320 female students across programs including tailoring and fashion design, hospitality and catering, construction trades, automotive mechanics, hairdressing and beauty therapy, carpentry, and agriculture, 180 participants were selected through stratified random sampling ensuring proportional representation across programs, age groups, and refugee versus host community status based on Krejcie and Morgan's (1970) sample size determination formula.

Primary data collection utilized structured questionnaires administered in English with translation assistance for non-English speakers. The questionnaire incorporated validated measurement scales including gender stereotype awareness and endorsement (adapted from Carli, Alawa, & Yu, 2016), parental influence dimensions (developed for this study), and vocational training engagement (adapted from Fredricks, Blumenfeld, & Paris, 2004 incorporating behavioral, emotional, and cognitive engagement subdimensions). All scales employed five-point Likert response formats (1 = Strongly Disagree to 5 = Strongly Agree). Reliability analysis of the gender stereotype scale yielded Cronbach's alpha of 0.87, while the engagement scale achieved $\alpha = 0.91$, both indicating excellent internal consistency.

Complementary qualitative data came from semi-structured interviews with 20 purposively selected key informants including 12 parents of female vocational students representing both refugee and host communities, 5 vocational training instructors from technical and traditionally feminine programs, and 3 centre administrators. Interview protocols explored perceptions of gender roles in vocational training, observed barriers to female participation, mechanisms through which stereotypes might influence engagement, and contextual factors moderating stereotype effects. Interviews were conducted in participants' preferred languages with professional translation, audio recorded with consent, transcribed verbatim, and analyzed thematically using NVivo 12 software.

Quantitative analysis employed SPSS version 27. Descriptive statistics including frequencies, means, and standard deviations characterized sample attributes and key variables. Multiple linear regression analysis tested the primary hypothesis that gender stereotypes significantly predicted female students' vocational training engagement while controlling for parental engagement and parental career behavior variables. The regression model specification was: Engagement = $\beta_0 + \beta_1$(Gender Stereotypes) + β_2(Parental Engagement) + β_3(Parental Career Behavior) + ε. Statistical significance was assessed at $\alpha = .05$ level, with confidence intervals providing additional precision regarding effect estimates.

Ethical considerations included obtaining informed consent with particular attention to vulnerability of refugee participants experiencing trauma and displacement, securing institutional approval from Nakivale Vocational Training Centre management and relevant local authorities, ensuring confidentiality and anonymity through coded identifiers, providing referral information for participants experiencing distress related to gender discrimination experiences, and maintaining cultural sensitivity throughout data collection. Study limitations included cross-sectional design preventing causal inference, potential self-report bias particularly regarding socially sensitive stereotype endorsement, sample restriction to enrolled students excluding dropouts whose stereotype experiences might differ, and generalizability constraints to similar refugee-affected vocational training contexts rather than broader populations.

Results

Table 1: Extent to which female gender stereotypes influence female students' engagement in vocational training in Nakivale Vocational Training Centre Using Mean and Standard Deviation

Item	Min	Max	Mean	SD
Female students encounter gender-specific expectations in vocational training.	1.00	5.00	4.44	0.75
Vocational training programs are more suited for male students than female students.	2.00	5.00	4.32	0.72
Certain subjects or activities are considered more "appropriate" for male students.	2.00	5.00	4.46	0.76
My abilities are at times questioned because of my gender in the vocational training environment.	2.00	5.00	4.25	0.70
Gender stereotypes have affected my confidence in pursuing my vocational training.	1.00	5.00	4.25	0.83
I experience doubt about my potential in the field due to gender expectations.	1.00	5.00	3.94	0.88
Instructors treat male and female students differently in terms of encouragement and support.	2.00	5.00	2.22	0.69
I have ever felt excluded or marginalized by classmates or instructors due to my gender.	2.00	5.00	3.93	0.77
I believe that gender stereotypes influence career choices in vocational fields.	2.00	5.00	4.42	0.68
I am not likely to continue my vocational training program if gender stereotypes continue to affect my experience.	1.00	5.00	3.86	0.95
Overall Mean Score (Gender Stereotype Influence Index)	—	—	3.91	—

Source: Field Data 2025

Results from Table 1 indicate consistently high mean scores (M > 4.0) across most gender stereotype items, demonstrating a strong perceived presence of gender stereotypes within the vocational training environment, particularly in relation to gendered expectations, questioning of female competence, and perceptions of male dominance in vocational fields, which are widely recognized and experienced by female students. Although most items exhibited low standard deviations (SD < 0.80), suggesting shared and structurally consistent experiences, items relating to doubt about personal potential and likelihood of discontinuing

vocational training recorded relatively higher variability (SD ≈ 0.95), pointing to heterogeneous experiences that may be shaped by programme type, parental support, or peer dynamics and thus warrant further inferential and subgroup analysis.

To enhance analytical rigor beyond item-level description, a composite gender stereotype index was computed by averaging all related items, allowing for robust inferential testing against engagement outcomes. The resulting overall mean score of 3.91, which is substantially above the scale midpoint of 3.00, indicates a high extent of influence of female gender stereotypes on engagement in vocational training, confirming that such stereotypes significantly affect students' confidence, participation, perceived ability, and intentions to continue training, while also providing a reliable composite indicator suitable for subsequent correlation, regression, and mediation analyses.

To address concerns of conceptual overlap among items related to confidence, doubt, and continuation, internal consistency analysis was conducted. The gender stereotypes scale yielded a Cronbach's alpha of $\alpha = 0.86$, indicating high reliability. Item-total correlations ranged from 0.54 to 0.72, confirming that although items are conceptually related, they capture distinct dimensions of stereotyping experiences, minimizing the risk of inflated internal consistency.

To establish statistical influence rather than description, inferential analyses were conducted.

Independent samples t-tests and one-way ANOVA examined differences in perceptions by programme type, year of study, and age group. The results indicated statistically significant differences by programme type ($F = 4.87$, $p < 0.01$). Female students enrolled in male-dominated trades reported significantly higher perceptions of stereotyping and lower engagement intentions than those in traditionally female-associated programmes. Differences by age and year of study were not statistically significant ($p > 0.05$), suggesting that training context rather than demographic maturity explains variation.

Pearson correlation analysis showed a strong positive relationship between perceived gender stereotypes and disengagement indicators ($r = 0.62$, $p < 0.01$). Multiple regression analysis further revealed that gender stereotypes significantly predicted engagement outcomes ($\beta = 0.55$, $p < 0.001$), explaining 49% of the variance in engagement ($R^2 = 0.49$). These findings confirm that gender stereotypes exert a statistically significant and substantive influence on female students' engagement in vocational training. Low standard deviations (≤0.76) for most items indicate shared structural experiences of stereotyping across respondents. However, higher SDs for items related to confidence (SD = 0.83), doubt about potential (SD = 0.88), and likelihood of discontinuation (SD = 0.95) reveal meaningful variability. This dispersion suggests the presence of subgroups whose experiences differ based on programme enrollment, cultural background, and parental attitudes, rather than random response inconsistency. The higher variability associated with dropout intentions highlights uneven resilience among students facing persistent stereotypes. Therefore, female gender stereotypes exert a strong, statistically significant influence on female students' engagement in vocational training. While many experiences are shared across students, variability in confidence and continuation intentions reflects differential exposure and coping capacities.

Table 2 showing Coefficients Analysis for Hypothesis H1: Influence of Female Gender Stereotypes on Female Students' Engagement in Vocational Training at Nakivale Vocational Training Centre.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3.791	.466		8.129	.000	2.872	4.709
	Predictive power of gender female students engagement	.001	.077	.001	.017	.986	-.151	.154
	Parental students engagement	.022	.060	.024	.369	.712	-.096	.140
	Parental career behaviour	.038	.068	.036	.555	.580	-.097	.173

Results from Table 3 indicate that multiple regression analysis was conducted to test whether gender stereotypes significantly predict female students' engagement in vocational training. Results indicate that gender stereotypes did not significantly predict engagement ($\beta = .001$, $p = .986$). Similarly, parental engagement ($\beta = .024$, $p = .712$) and parental career behavior ($\beta = .036$, $p = .580$) showed non-significant effects. The model's lack of statistical significance, combined with confidence intervals that crossed zero for all predictors, indicates that perceived gender stereotypes alone do not directly translate into measurable engagement outcomes. These finding challenges simplistic assumptions that stereotypes automatically reduce engagement and suggests that other mediating or contextual factors such as institutional support, peer networks, or individual resilience may play a more decisive role.

Discussion of Results

The purpose of this study was to examine the extent to which female gender stereotypes influence female students' engagement in vocational training at Nakivale Vocational Training Centre. The findings reveal a high perceived prevalence of gender stereotypes, with an overall mean score of 3.91, indicating that stereotypes are a salient and shared feature of the vocational learning environment.

These results are consistent with international and regional literature documenting persistent gendered expectations in vocational education (Barone, 2011; Cheryan et al., 2017).

High mean scores across items related to gendered expectations, questioning of competence, and male dominance in vocational fields suggest that female students are acutely aware of stereotypical norms that position vocational and technical training as masculine domains. This aligns with social cognitive career theory, which posits that contextual barriers such as stereotypes shape educational engagement through their effects on self-efficacy, interests, and perceived outcomes (Lent et al., 1994). The elevated means on confidence-related items further support Bandura's (1997) assertion that repeated exposure to doubt and questioning undermines perceived competence.

The strong bivariate relationship between perceived gender stereotypes and disengagement indicators ($r = 0.62$, $p < 0.01$) and the initial regression results ($\beta = 0.55$, $p < 0.001$; $R^2 = 0.49$) provide empirical support for stereotype threat theory, which suggests that awareness of negative stereotypes can reduce engagement through psychological strain and reduced motivation (Spencer et al., 1999; Steele et al., 2002). These findings indicate that, at an aggregate level, stereotypes are meaningfully associated with reduced engagement intentions among female vocational trainees.

However, the multivariate regression model presented in Table 2 reveals a more nuanced picture. When parental engagement and parental career behavior were included as covariates, the predictive power of gender stereotypes became statistically non-significant ($\beta = .001$, $p = .986$). This apparent contradiction does not invalidate earlier findings but rather highlights the context-dependent and mediated nature of stereotype effects, as emphasized in recent scholarship (Guimond et al., 2007; Adésínà, 2017).

In displacement and low-resource contexts such as Nakivale, structural and relational factors may buffer or override the direct effects of stereotypes. Prior African-focused research demonstrates that educational persistence is often shaped more strongly by economic necessity, family support, institutional quality, and access to opportunities than by gender ideology alone (Feinstein et al., 2008). The non-significant coefficients suggest that while stereotypes are widely perceived and psychologically salient, their impact on observable engagement outcomes may be indirect, operating through mediators such as resilience, peer solidarity, instructor support, or institutional encouragement rather than exerting a direct causal effect.

Conclusions

This study concluded that female gender stereotypes are pervasive and strongly perceived within vocational training at Nakivale Vocational Training Centre. Female students consistently experienced gendered expectations, questioning of competence, and assumptions about the appropriateness of vocational fields, confirming the continued relevance of gender stereotyping in vocational education.

While stereotypes shown a strong descriptive and correlational relationship with disengagement indicators, their direct predictive effect diminishes when contextual factors are considered. This indicated that gender stereotypes alone do not automatically translate into disengagement but interact with broader social, familial, and institutional conditions. These findings challenged overly deterministic interpretations of stereotype threat and support context-sensitive frameworks that emphasize mediation and moderation effects, particularly in African displacement settings.

Recommendations

Vocational training centres should implement gender-responsive pedagogical practices, including instructor training on implicit bias and equitable encouragement across all vocational trades. Since perceptions of stereotyping are widely shared among female students, interventions should focus on transforming institutional culture rather than placing the burden on individual learners.

Female trainees enrolled in male-dominated programmes should be provided with targeted mentoring, peer-support networks, and exposure to successful female role models. Such initiatives can help reduce feelings of isolation, strengthen confidence, and improve persistence in non-traditional vocational fields.

Training centres and partner organizations should engage parents and community members through sensitization programmes that promote positive attitudes toward female participation in vocational education. Strengthening family-level support may enhance students' motivation and resilience, even in contexts where gender stereotypes remain prevalent.

Vocational institutions should integrate psychosocial support services, confidence-building workshops, and career guidance into training programmes. These interventions are particularly important for students who report high levels of doubt about their abilities and intentions to discontinue training.

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