Evaluating Institutional Initiatives for Gender Equality in STEM Education at Open University Malaysia

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ABSTRACT

Gender equality in Science, Technology, Engineering, and Mathematics (STEM) education continues to face persistent challenges worldwide, with women underrepresented in technical fields despite policy reforms and widening access to higher education. In Malaysia, national agendas such as the Education Blueprint 2015–2025 and the Twelfth Malaysia Plan emphasise inclusivity, yet disparities remain in enrolment, participation, and progression, particularly in engineering and information technology. Open and Distance Learning (ODL) institutions such as Open University Malaysia (OUM) are uniquely placed to address these gaps by providing flexible access for diverse groups, including women balancing study, work, and family commitments. This study employed a cross-sectional quantitative survey design to investigate OUM's initiatives aimed at promoting gender equality in STEM and to evaluate the effectiveness of its policies, practices, and support services. A stratified random sample of 336 students across STEM programmes completed a structured Likert-scale questionnaire measuring visibility of initiatives, improvement measures, satisfaction with support services, and perceptions of discrimination. Findings revealed that over 70% of respondents recognised institutional initiatives and improvement efforts, while two-thirds expressed satisfaction with support services, though neutral and dissatisfied responses highlighted gaps in awareness and delivery. Results confirm that OUM has embedded gender equality into its agenda but uneven effectiveness persists, requiring stronger communication and implementation

Keywords: Gender Equality, STEM Education, Open and Distance Learning (ODL), Institutional Initiatives

INTRODUCTION

Gender equality in Science, Technology, Engineering, and Mathematics (STEM) education continues to be a pressing global issue, as women remain underrepresented in many science and technology-related fields. Despite progress in higher education access, disparities in enrolment, participation, and career progression persist, especially in engineering, information technology, and other technical disciplines. These inequalities are shaped by structural barriers, socio-cultural norms, and institutional practices that can either reinforce or reduce gender gaps. Institutions of higher learning are therefore expected to play a crucial role in promoting inclusive policies and practices that support equal opportunities for both men and women.

In the context of Malaysia, national agendas such as the Malaysia Education Blueprint (Higher Education) 2015–2025 and the Twelfth Malaysia Plan (2021–2025) highlight gender equality as an integral part of educational reform and sustainable development. These policies align with international commitments such as the United Nations Sustainable Development Goal (SDG) 5 on achieving gender equality and empowering women and girls, and SDG 4 on ensuring inclusive and equitable quality education. By embedding gender equality into educational strategies, universities contribute not only to the advancement of knowledge but also to the broader goal of social justice and national development.

Open and Distance Learning (ODL) institutions hold a unique position in advancing gender equality in education. With their flexible learning models, they attract learners from diverse backgrounds, including working adults, women returning to education, and individuals from rural or underserved communities. Open University Malaysia (OUM), as the country's premier ODL provider, is particularly significant in this regard.

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Through its policies, programmes, and support services, OUM is expected to remove barriers to participation and provide an inclusive learning environment that enables women to thrive in STEM fields.

Research Gap: Although policies and agendas highlight the importance of gender equality, limited empirical research has been conducted on how institutional initiatives are perceived and experienced by students in ODL settings, particularly in Malaysia. Most existing studies concentrate on conventional universities or focus on broad national strategies, leaving a lack of evidence on the effectiveness of ODL-specific interventions in promoting gender equality in STEM. There is also little understanding of whether the policies and support services offered by OUM are translating into meaningful outcomes for women students in practice. This gap makes it necessary to examine student perspectives and institutional measures in greater detail to provide targeted recommendations for improvement.

Evaluating institutional initiatives at OUM provides valuable insights into how universities can address gender disparities in STEM education. This evaluation not only identifies existing measures such as policy frameworks, mentorship opportunities, and student support services, but also explores how effective these initiatives are from the students' perspective. Understanding student perceptions is critical, as it highlights whether policies are meaningfully implemented or remain symbolic. It also helps to uncover areas where improvements are needed, such as tackling implicit bias, strengthening reporting mechanisms for discrimination, and enhancing access to counselling and career guidance.

Evaluating institutional initiatives at OUM provides valuable insights into how universities can address gender disparities in STEM education. This evaluation not only identifies existing measures such as policy frameworks, mentorship opportunities, and student support services, but also explores how effective these initiatives are from the students' perspective. Understanding student perceptions is critical, as it highlights whether policies are meaningfully implemented or remain symbolic. It also helps to uncover areas where improvements are needed, such as tackling implicit bias, strengthening reporting mechanisms for discrimination, and enhancing access to counselling and career guidance. This study is motivated by the pressing need to ensure that women in ODL environments are not left behind in STEM fields and that institutional policies translate into tangible progress. The drive to conduct this research stems from the recognition that inclusive and supportive academic environments can transform individual lives, foster equity in education, and contribute directly to Malaysia's social and economic development.

Research Objectives

To examine the institutional initiatives implemented by Open University Malaysia (OUM) aimed at promoting gender equality in STEM education.

To evaluate the effectiveness of OUM's support services, policies, and practices in addressing gender disparities and fostering an inclusive learning environment in STEM fields.

Research Questions

What institutional initiatives has Open University Malaysia (OUM) implemented to promote gender equality in STEM education?

How effective are OUM's support services, policies, and practices in reducing gender disparities and fostering an inclusive learning environment in STEM fields?

LITERATURE REVIEW

Gender Equality in Malaysian Higher Education

Malaysia has made considerable progress in narrowing gender disparities in education, but persistent gaps remain across different levels of participation and leadership. Weimann-Sandig (2020) discussed Malaysia's broader transition toward more equal labour market opportunities, pointing out that educational reforms play a central role in achieving gender parity. Saleh, Ismail, and Shukur (2020) described how women's rights

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advocacy in Malaysia has been rebranded to improve public perception and support institutional changes. These studies suggest that while gender equality is increasingly embedded in national narratives, universities still need to operationalise these commitments through programmes and monitoring frameworks.

Elhadary and Samat (2023) examined gender disparity in public universities and highlighted both achievements in enrolment parity and challenges in fostering equitable career trajectories. They pointed out that more women now enter universities, yet few advances into senior academic or administrative positions. Baqutayan (2020) reinforced this point, noting that women's empowerment is not just about access but about sustaining equality throughout their education-to-work journey. This is critical in institutions like Open University Malaysia (OUM), which caters to diverse learner demographics that include women balancing work, study, and family commitments.

Institutional Strategies for Gender Equality

Institutional strategies are central to embedding equality into academic systems. Ahmad, Saad, Krishnan, Stancu, and Mogos (2024) analysed University Social Responsibility (USR) initiatives and concluded that sustainable development agendas must include gender-sensitive policies to be effective. They argued that USR provides universities with a framework for evaluating their social commitments, including gender equality goals. Similarly, Chan, Huam, and Sade (2021) found that gender differences affect how students perceive USR initiatives, showing that institutions cannot adopt one-size-fits-all policies when addressing gender issues.

Samy, Mahdi, and Rusok (2021) studied progress in recognising diversity and fostering inclusiveness within Malaysian universities, highlighting the need for consistent monitoring of institutional programmes. They stressed that policy documents often present progressive commitments, but practical application depends on faculty-level strategies, student support systems, and curriculum integration. For OUM, these insights are especially relevant given its reliance on online and distance learning (ODL), where institutional inclusivity must be embedded not only in policy but also in learning platforms and digital resources.

STEM Education and Gender Representation

Research on STEM education in Malaysia reveals persistent inequalities, despite positive policy directions. Halim and Nam (2021) examined STEM education from a regional perspective and found that female participation in certain disciplines, such as engineering, remains low compared to biological sciences. Saat and Fadzil (2021) also argued that STEM research in Malaysia shows fragmented efforts to integrate gender equality, which limits the impact of policies designed to attract women into technical disciplines. These findings suggest that institutional strategies must target specific disciplines rather than treating STEM as a uniform entity.

Ali, Jaaffar, and Ali (2021) highlighted that STEM education is directly linked to small and medium enterprises (SMEs) that expect a skilled workforce, which increases the urgency of addressing gender representation in STEM. Chuan-We (2025) explored enrolment in additional mathematics as a predictor for engineering participation, showing that socio-economic and gender factors strongly influence subject choices. Jinn, Zaman, Zakaria, Mahali, and Aleng (2022) confirmed these findings with statistical evidence that undergraduate enrolment patterns reflect gendered choices across faculties. These studies underscore the role of institutions like OUM in encouraging women to pursue STEM by offering flexible, supportive pathways.

Gender Leadership and Empowerment in STEM

Leadership and empowerment in STEM remain major barriers to equality. Raza and Singh (2024) provided a comprehensive review of women in STEM leadership, noting that structural and cultural obstacles continue to restrict women's advancement. They emphasised that mentoring programmes, leadership training, and institutional policies are critical in breaking the cycle of underrepresentation. Pitt and Highnam (2023) further argued that gender equality in engineering requires institutions to reflect on their internal structures, suggesting that equality is not only about access but also about institutional culture.

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Othman, Abdullah, Abdullah, Ganesan, and Samad (2024) reinforced this argument by showing how gender equality in education contributes to broader economic empowerment, linking institutional initiatives directly to national development goals. Aminuddin and Azlan (2024) highlighted similar patterns in Malaysian politics, noting that leadership roles remain disproportionately male-dominated despite women's significant contributions. Together, these findings suggest that institutions like OUM must evaluate their gender policies not just in terms of access but in fostering long-term leadership opportunities for women in STEM.

Cultural, Social, and Legal Dimensions

Cultural and legal frameworks shape institutional responses to gender inequality. Elias (2020) examined the intersection of gender politics and national competitiveness in Malaysia, noting that political narratives influence how gender reforms are prioritised in education. Rajan, Joothymani, and Althabhawi (2022) explored gender equality from the perspective of jurisprudence and found that legal interpretations continue to shape the extent of women's participation in academic and professional settings. These studies show that educational institutions operate within broader sociopolitical contexts that influence their capacity to implement effective gender policies.

Asfiyak and Jannah (2025) studied the role of Islamic jurisprudence in strengthening family frameworks, highlighting how fiqh-based education influences gender equality at the societal level. Their findings suggest that cultural and religious values are integral to shaping educational opportunities and participation rates, especially for women. Such insights are highly relevant to OUM, where student populations often include learners influenced by cultural norms, family structures, and religious practices that intersect with institutional commitments to equality.

Pedagogical Innovations and Support Services

Pedagogical innovation has been identified as a key driver for supporting women in STEM education. Rahim, Nordin, and Samsudin (2022) demonstrated that integrated STEM problem-based learning encourages inclusivity, especially for female undergraduates who may disengage from traditional teaching methods. This approach aligns with the needs of OUM learners, who benefit from active and flexible learning models that support diverse engagement styles. Similarly, Syahid, Kamri, and Azizan (2021) evaluated MOOCs usability and found that female undergraduates valued flexible and supportive online environments, reinforcing the importance of digital inclusivity in ODL institutions.

Ong, Krishnan, and Reston (2024) investigated determinants of STEM major choice and concluded that institutional mentorship, role models, and supportive environments are significant in influencing female participation. Tamada et al. (2024) examined gender-neutral academic climates and found that institutional culture strongly affects student engagement and retention in STEM. These findings imply that OUM's initiatives should not only focus on enrolment but also build sustained support through inclusive pedagogy and student-centred resources.

International and Comparative Perspectives

Comparative research highlights lessons Malaysia can draw from global contexts. Lara-Prieto, Ruiz-Cantisani, and Cantisani (2024) examined Latin American initiatives that empower women engineers, showing how institutional partnerships and mentoring models can be adapted elsewhere. Taylor and Williamson (2024) studied co-design methods for evaluating gender initiatives, stressing that involving practitioners and students directly in the evaluation process produces more sustainable outcomes. These findings suggest that OUM could adopt participatory frameworks to assess its own gender equality programmes.

Vilhena, Bencivenga, López Belloso, Leone, and Taramasso (2024) proposed participatory strategies to integrate gender into teaching and research, emphasising cross-disciplinary collaboration. Their work aligns with global discussions that equality must be embedded in curricula and research agendas. By contextualising these approaches to OUM's ODL framework, the university can strengthen its international credibility while advancing local gender equality goals.

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The Role of Economic and Labour Market Factors

Labour market conditions reinforce the urgency of institutional gender equality initiatives. Yusoff, Ahmad, Ali, Ismail, and Asri (2021) argued that gender equality in higher education translates into women's empowerment in Malaysia's economic sector, particularly in industries that rely heavily on STEM expertise. Their findings highlight that universities serve as a bridge between gender equality in education and workforce participation. Idris, Faisal-E-Alam, Castanho, and Loures (2024) further emphasised that bridging gender gaps in STEM requires aligning institutional strategies with industry needs, ensuring that graduates are both employable and empowered.

These studies indicate that economic considerations should be central to institutional gender equality programmes. For OUM, this means designing STEM curricula that not only encourage female participation but also equip women with the skills to succeed in competitive industries. Institutional initiatives aimed at equality are most effective when they create direct pathways from academic participation to professional inclusion, sustaining the momentum for gender equality across education and employment.

Theoretical Framework

The analysis of gender equality in STEM education at Open University Malaysia (OUM) is underpinned by multiple theoretical perspectives that explain both the barriers and the enabling factors shaping participation. Figure 1.0 illustrates how psychosocial and cultural factors, influenced by broader societal challenges, interact with institutional support mechanisms to produce outcomes that shape workplace equity and conditions. This framework integrates four key theoretical lenses: Social Role Theory, Stereotype Threat Theory, Expectancy-Value Theory, and Social Cognitive Career Theory.

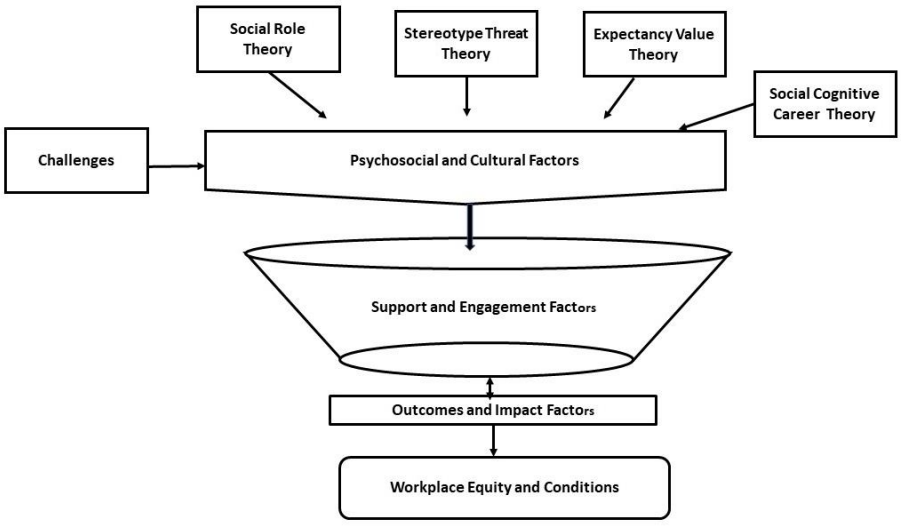

Figure 1: Theoretical Framework Linking Psychosocial, Cultural, and Institutional Factors to Gender Equality Outcomes in STEM Education

Social Role Theory provides insight into how traditional gender norms and expectations influence career and educational choices. In the Malaysian and ASEAN context, women are often socially expected to pursue roles associated with caregiving or "feminised" professions, which reduces participation in science and engineering disciplines. These socially constructed roles contribute to structural inequalities in access and representation in STEM.

Stereotype Threat Theory explains the psychological barriers that women face in environments where stereotypes about gendered performance in mathematics, engineering, or technology are salient. The anticipation of being judged through the lens of such stereotypes can undermine confidence, reduce academic performance, and discourage persistence in STEM fields. For OUM students, particularly those studying in

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distance and online modes, stereotype threat may intersect with additional challenges such as limited peer support or social isolation.

Expectancy-Value Theory highlights the motivational dimension of gender disparities in STEM education. Students are more likely to engage with and persist in fields where they believe they can succeed (expectancy) and where the subject is valued by society, family, or the labour market (value). Gender differences in STEM participation can partly be attributed to lower expectancy of success among female students, as well as reduced perceptions of value due to cultural biases or limited role models.

Social Cognitive Career Theory (SCCT) complements these perspectives by emphasising the interaction between self-efficacy, outcome expectations, and contextual supports or barriers in shaping career development. For women in STEM, positive self-efficacy beliefs and supportive environments can encourage persistence, while negative experiences of bias, lack of mentoring, or structural inequities can reduce engagement. SCCT underscores the importance of institutional interventions—such as mentoring programmes, gender-sensitive policies, and supportive networks—in mitigating barriers and enhancing women's participation.

In the framework, these theories collectively inform the understanding of psychosocial and cultural factors, which represent the underlying challenges faced by students. Institutional support and engagement factors, including counselling, mentoring, scholarships, and awareness initiatives, function as mediators that help counteract these barriers. The outcomes and impact factors reflect shifts in student perceptions, confidence, and persistence in STEM programmes. Over time, these outcomes contribute to broader workplace equity and conditions, which not only benefit individual graduates but also help reshape the gendered structure of STEM professions in Malaysia.

This theoretical framework therefore positions OUM's gender equality initiatives within a multi-level model. At the individual level, psychological and motivational barriers are addressed through targeted support services. At the institutional level, policies and practices shape the learning environment to be more inclusive. At the societal level, universities act as agents of change by challenging gender stereotypes and contributing to long-term workplace equity. Integrating these perspectives provides a robust analytical foundation for evaluating institutional initiatives and identifying areas for improvement in promoting gender equality in STEM education.

METHODOLOGY

This study employed a cross-sectional quantitative survey design to investigate institutional initiatives for gender equality in STEM education at Open University Malaysia (OUM). A survey design was justified because it provides a systematic way to capture student perceptions across a large and diverse population in a relatively short time. Given that the research sought to examine institutional initiatives, evaluate effectiveness, and compare experiences across demographic groups, a survey was the most efficient and reliable method to collect standardised data that could be statistically analysed.

The study population comprised learners enrolled in STEM-related programmes at OUM, including engineering, computer science, information technology, mathematics, and applied sciences. OUM was selected as the research site due to its unique role as the premier Open and Distance Learning (ODL) institution in Malaysia, which directly aligns with the study's focus on inclusive education. Stratified random sampling was chosen to ensure fair representation of gender, study levels, and faculty clusters. This approach was justified because gender equality research requires adequate subgroup representation to uncover nuanced differences, and randomisation reduces sampling bias. The final sample of 336 responses was not only statistically adequate but exceeded the recommended threshold for factor analysis, strengthening the reliability of the findings and ensuring meaningful subgroup comparisons.

A structured questionnaire was developed to measure four institutional dimensions: visibility of gender equality initiatives (C2), measures for improvement (C6), satisfaction with support services (C5), and perceptions of discrimination (C3). These dimensions were chosen as they directly address the research

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objectives and reflect common indicators in gender equality studies. Likert-scale items were used because they allow respondents to express degrees of agreement, making it possible to conduct both descriptive and inferential analysis. To justify the measurement quality, items were adapted from established instruments in higher education and validated by three subject-matter experts for clarity and cultural alignment. A pilot test further ensured reliability, minimised ambiguity, and confirmed feasibility for ODL students. This multi-step process strengthened both the validity and appropriateness of the instrument.

Data collection through OUM's student portal and email was justified as it ensured wide accessibility for distance learners, reduced logistical barriers, and aligned with the digital nature of ODL education. Ethical considerations—including voluntary participation, informed consent, and confidentiality—were strictly applied to encourage honest responses and safeguard participants' rights.

Rigorous data cleaning, treatment of missing values, and outlier checks were performed to ensure data integrity. Reliability and validity tests (EFA, CFA, Cronbach's alpha, composite reliability, AVE, Fornell–Larcker, and HTMT) were conducted to justify the soundness of constructs. These methods were chosen because they are standard in quantitative studies on perceptions, ensuring that the constructs measured what they intended to. Measurement invariance tests across gender were particularly justified as they validated the comparability of results between male and female respondents, which is central to the study's aim.

For analysis, descriptive statistics were used to summarise student perceptions, which was necessary to provide a baseline understanding of OUM's initiatives. Inferential statistics such as t-tests, ANOVA, and non-parametric equivalents were applied to identify subgroup differences, justified because they reveal whether gender, study level, or faculty cluster influence perceptions. Structural Equation Modelling (SEM) was employed to test hypothesised relationships among initiatives, support services, and perceptions of discrimination. SEM was chosen because it goes beyond simple correlations, allowing for a comprehensive model-based evaluation of direct and indirect effects while accounting for measurement error. Fit indices (CFI, TLI, RMSEA, SRMR) were reported to justify the adequacy of the model.

By adopting this methodology, the study achieved both breadth and depth: breadth through a large and diverse sample, and depth through rigorous measurement and model testing. Each methodological choice—from survey design to SEM—was justified based on its ability to answer the research objectives, ensure validity, and provide reliable evidence on gender equality initiatives in OUM's STEM education context.

RESULTS & OUTCOMES

The responses from 336 students highlight a generally positive view of Open University Malaysia's (OUM) institutional initiatives to promote gender equality in STEM education. The findings, presented in Table 1, cover four dimensions: (C2) university-level gender equality initiatives, (C6) measures to improve gender equality, (C5) satisfaction with support services, and (C3) observed discrimination. Overall, the data suggest that institutional frameworks exist and are recognised by students, although gaps in communication, support service effectiveness, and perceptions of discrimination remain.

Table 1: Student perceptions of institutional initiatives on gender equality in STEM education at OUM

Institutional Initiative	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
University has gender equality initiatives (C2)	45.3	30.2	15.7	6.8	2.0
University took measures to improve gender equality (C6)	42.7	31.5	18.4	5.5	1.9
Satisfaction with university support (C5)	38.9	29.4	20.6	8.1	3.0

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Observed gender discrimination cases (C3)	12.5	15.2	25.3	28.9	18.1

Examination of Institutional Initiatives (Objective i)

The majority of students acknowledged the presence of institutional initiatives supporting gender equality. Specifically, 75.5% either strongly agreed or agreed that OUM has put in place such initiatives (C2). Only 8.8% disagreed, while 15.7% were neutral. This indicates that OUM has successfully developed visible strategies and frameworks, such as policy statements, equality guidelines, or inclusion campaigns, which are recognised by most of its student body. The minority of respondents who disagreed suggests that while initiatives exist, their effectiveness or reach is not universally experienced. This may reflect uneven communication across faculties or varying levels of student engagement with institutional policies.

In terms of improvement measures (C6), 74.2% of respondents strongly agreed or agreed that OUM is actively working to enhance gender equality, with only 7.4% disagreeing. The 18.4% who were neutral may represent students who are less aware of targeted initiatives, such as scholarship opportunities, gender-focused workshops, or awareness campaigns. The high level of agreement supports the conclusion that OUM has moved beyond symbolic policies by adopting practical measures aimed at addressing gender gaps. Nonetheless, the neutral responses point to the need for greater visibility and accessibility of these measures, particularly among students who may not be directly engaged in institutional activities.

Evaluation of Support Services and Practices (Objective ii)

When asked about satisfaction with university support services (C5), 68.3% expressed agreement that OUM provides effective resources such as mentoring, counselling, and academic guidance. However, one-fifth of students (20.6%) remained neutral, while 11.1% indicated dissatisfaction. These findings suggest that support structures are present but not fully meeting the needs of all students. In particular, neutral responses may reflect a lack of awareness or limited usage of services, while negative responses point to possible shortcomings in service delivery, responsiveness, or inclusivity. The results imply that OUM's support mechanisms are beneficial for many students but may not adequately address specific barriers faced by women in STEM, such as gender stereotyping, balancing family commitments, or limited access to role models.

The indicator on observed gender discrimination (C3) produced a more divided response. Only 27.7% reported that they had witnessed or experienced discrimination, while nearly half (47.0%) disagreed, indicating that a majority perceive the institutional environment as relatively free from overt bias. However, the substantial proportion of neutral responses (25.3%) suggests a level of uncertainty or reluctance to disclose experiences of discrimination. This ambiguity raises concerns about underreporting, lack of awareness regarding what constitutes gender bias, or insufficient visibility of reporting mechanisms. The 47% disagreement may point to success in OUM's broader inclusivity culture, but the existence of nearly one-third acknowledging discrimination highlights the persistence of subtle forms of inequality that require attention.

The results clearly demonstrate that OUM has institutional initiatives in place to promote gender equality in STEM education and that these are generally recognised by students. Both policy frameworks (C2) and improvement measures (C6) have high levels of agreement, suggesting institutional commitment is visible and meaningful. However, the findings also point to gaps in communication, since a sizeable proportion of students remained neutral, indicating either limited exposure to these initiatives or uncertainty about their effectiveness.

Support services (C5) received relatively lower levels of strong agreement compared to institutional policies, showing that while many students benefit from mentoring and counselling, these services may not be consistently accessible or impactful across the student population. The responses on discrimination (C3) further complicate the picture, revealing that although overt discrimination is not widely reported, a significant number of students either remain uncertain or acknowledge experiences of bias. This suggests that the

presence of policies does not automatically translate into full inclusivity, and continuous institutional monitoring and reinforcement are required.

Overall, the outcomes for indicate that OUM has established a foundation of gender equality initiatives that are recognised by most students. Yet, there is scope to strengthen implementation, improve awareness of available services, and ensure that reporting mechanisms for discrimination are visible, trusted, and effective. Addressing these areas could significantly enhance the university's role in creating an inclusive environment that supports equitable participation in STEM education.

CONCLUSION

This study was conducted to evaluate institutional initiatives for gender equality in STEM education at Open University Malaysia (OUM), guided by the central research question: What initiatives are institutions taking for gender equality in STEM education at OUM? and two objectives: (i) to examine the institutional initiatives implemented by OUM aimed at promoting gender equality, and (ii) to evaluate the effectiveness of its support services, policies, and practices in addressing gender disparities and fostering an inclusive learning environment.

The findings addressed the first objective by confirming that OUM has introduced and embedded institutional initiatives designed to promote gender equality, with 75.5% of respondents acknowledging the presence of such initiatives and 74.2% recognising improvement measures. These results indicate that gender equality has been incorporated into OUM's institutional agenda through visible frameworks and policies. At the same time, neutral responses highlighted that awareness is not uniform, suggesting the need for clearer communication of these measures across all student groups.

The second objective was met through results relating to the effectiveness of support services, policies, and practices. Analysis showed that more than two-thirds of respondents were satisfied with mentoring, counselling, and academic support provided, confirming that OUM has made progress in building inclusive structures. Nevertheless, one-fifth of students responded neutrally and 11.1% expressed dissatisfaction, which indicates uneven effectiveness and gaps in delivery. Responses on discrimination added further insight, showing that nearly half of students disagreed with having experienced discrimination, but 27.7% reported experiences and 25.3% remained neutral, reflecting that while the institutional climate is broadly positive, some barriers remain.

In direct response to the research question, the study concludes that OUM has taken meaningful institutional steps toward gender equality in STEM education, recognised by a majority of students. These initiatives are visible and structured, and support services are accessible to many learners. However, the results demonstrate that institutional efforts are not uniformly experienced, as disparities in awareness, satisfaction, and perceptions of discrimination persist. The conclusion is that OUM has established a foundation for gender equality in STEM through policies, initiatives, and services, but the effectiveness of these measures varies across student groups and requires more consistent implementation, stronger communication, and further monitoring to ensure that inclusivity is fully achieved.

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