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Education as a Tool to Empower Women and Achieve Gender Equality

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ABSTRACT

Women's empowerment and gender equality remain global challenges despite substantial progress in women's educational access. This study aims to critically analyze education as an instrument for empowering women and advancing substantive gender equality, focusing on the mechanisms through which education strengthens agency, capabilities, participation, and decision-making. A qualitative Systematic Literature Review (SLR) was employed, following PRISMA 2020 guidelines. Peer-reviewed studies published between 2020 and 2025 were systematically identified, screened, assessed for relevance, and synthesized thematically. The findings indicate that education contributes to women's empowerment by increasing knowledge, skills, self-confidence, decision-making capacity, economic opportunities, and awareness of gender rights. However, its effects are neither automatic nor linear. Educational attainment alone does not guarantee substantive equality because patriarchal norms, labor-market discrimination, unequal domestic responsibilities, institutional barriers, socioeconomic conditions, and digital inequalities mediate the conversion of educational resources into agency and social achievements. The study concludes that education functions primarily as an enabling condition rather than a sufficient determinant of gender equality. Its scientific contribution lies in integrating human capital, capability, and empowerment perspectives to explain how educational resources become agency and empowerment under specific structural conditions across diverse social contexts. The study recommends gender-transformative, inclusive, digitally responsive educational policies and future longitudinal and mixed-methods research.

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1. INTRODUCTION

Education in essence functions not only as an instrument for knowledge and skill transfer, but also as a strategic means to shape human capacity to make life choices, participate in society, and obtain equal opportunities in various areas of life. From a sustainable development perspective, women's and girls' education is one of the important prerequisites for achieving gender equality because education can expand access to knowledge, employment, decision-making, health, and socio-political participation. UNESCO emphasizes that women's education is an investment that has a broad impact

on development because it can break cycles of intergenerational misfortune while strengthening women's ability to participate in social and economic life (Anderson, E. W. 2022). In fact, the Global Education Monitoring Report shows that in the last two decades there has been great progress in women's access to education globally, including the narrowing of the gap in educational participation between women and men (Bui, T. 2023). Thus, ideally, education should not stop at achieving equal access and school participation rates, but develop into an instrument of social transformation that allows women to have a stronger capacity, voice, autonomy, and bargaining position. Education oriented towards gender equality should form women as development subjects who are able to make decisions for themselves, enter the public sphere, develop professional competence, and contribute to social, economic, political, and cultural processes.

However, improved educational attainment has not automatically resulted in substantive gender equality. UNESCO's 2025 report shows that while progress towards gender equality in access and educational outcomes continues, gaps still persist at various levels of education and are especially evident in the representation of women in educational leadership positions; the higher the level of education, the less visibility of women in leadership (Brussino, O., & McBrien, J. 2022). These findings point to an important paradox: women can obtain relatively higher amounts of education, but the benefits of education have not always been converted into equal power, authority, leadership opportunities, and social influence. This problem is also reflected in the Indonesian context. The Central Statistics Agency reported that Indonesia's Gender Inequality Index (GDI) in 2024 did decrease to 0.421, which shows an improvement compared to the previous year, but the indicator still shows that the gap between women and men is still a development issue that needs to be addressed systematically (Diwakar, V. (2023). The IKG itself includes the dimensions of reproductive health, empowerment, and the labor market, thus showing that gender issues cannot be reduced to just a problem of access to education (Ebrahimi et al, 2022). Even at the regional level, the disparity in women's empowerment is still real; for example, BPS data shows that the Magelang Regency Gender Empowerment Index in 2024 will be 66.97, down from 70.52 in 2023 (Engida, Y. M. 2021). This fact shows that the improvement of educational and human development in general has not always been linear with the increase in women's empowerment.

A more specific problem lies in the gap between education as access and education as a transformative force. So far, the success of women's education has often been assessed based on quantitative indicators such as school participation rates, length of schooling, graduation rates, or academic achievement. In fact, new education can be said to be empowering if the knowledge and skills gained are able to increase women's capacity to make choices, voice their interests, gain access to resources, and challenge social structures that limit their roles. Recent studies show that education is indeed correlated with the formation of more egalitarian gender views. A systematic review of 20 studies conducted by Hossain and Islam shows that education in general is positively related to more liberal gender ideology, but the existing literature is still dominated by quantitative research and requires a more in-depth exploration of contextual factors that explain how education affects gender views and relationships (Gore et al, 2023). In other words, the main issue is no longer solely whether women get education, but what kind of education is able to change the structure of opportunities and gender power relations. Education that is not gender-sensitive even has the potential to reproduce stereotypes through curriculum, teaching materials, learning practices, role sharing, and social expectations for women. Therefore, education needs to be understood critically as an arena that can simultaneously reproduce inequality and become a space to negotiate and change these inequality.

This condition becomes even more complex when women's empowerment is placed in the context of rapid economic and technological change. Digital transformation creates new opportunities for women to access information, education, professional networks, entrepreneurship, and public participation spaces, but at the same time generates new forms of gaps in technology access, digital skills, and women's participation in technology. UNESCO in its 2024 gender report shows that technology can indeed be an important means to expand educational opportunities for women, but the

gap in access to technology and digital skills is still a significant obstacle to gender equality (Hinton-Smith, T. 2024). This issue emphasizes that women's education in the contemporary era must be understood more broadly than formal education. Education needs to include strengthening digital literacy, critical thinking skills, confidence, professional skills, rights awareness, and the ability to make decisions independently. Yu et al.'s research on gender equality interventions in STEM education also shows the importance of designing educational interventions that deliberately address gender barriers, not just opening equal access to education for women and men (Hossain et al, 2024). Therefore, education that empowers women must be able to shift the paradigm from equality of access to equality of capability and agency, namely equality in the ability and capacity to use education as a capital for life change.

Although a number of studies have proven a positive relationship between education, gender change and women's empowerment, there is still an important research gap to be studied. First, many previous studies have placed education as a quantitative variable in the form of education level or length of schooling, so it has not fully explained the educational process as a mechanism for the formation of women's agency. Second, some studies have emphasized the issue of women's access to and participation in education, while studies on how learning experiences, curriculum, pedagogy, digital literacy, and the educational environment can shape women's ability to negotiate unequal social structures are still relatively limited. Third, there is a tendency to separate the study of women's education from the study of gender empowerment and equality, even though the three are interrelated processes. Fourth, research on education and gender equality also still requires a more contextual and critical approach because women's experiences are not homogeneous; social class, region, economic conditions, culture, technology, and family structure can determine the extent to which education truly results in empowerment. Hossain's systematic review of Islam confirms that the dominance of quantitative approaches in research on the relationship between education and gender ideology leaves the need for a more contextual and in-depth approach (Gore et al, 2023). Thus, the research gap is not simply a lack of research quantity, but lies in the limited understanding of the transformative mechanisms of education: how education transforms women's capacity from beneficiaries of development to agents who have agency in the fight for gender equality.

Research on education as a tool for women's empowerment is becoming increasingly important now that progress on gender equality is facing contradictory situations. On the one hand, more and more women are gaining access to education and development opportunities; on the other hand, gaps in leadership, economic participation, decision-making, technology, and social norms still persist. UNICEF in its 2024 report asserts that no country with available data has achieved even half of the 16 SDG targets that are most important for the well-being of girls and women (Jain et al, 2024). By 2025, UNICEF also reports that more than 86 million girls have been supported to gain access to education and 17 million are participating in skills development programs, but at the same time systemic change and policy strengthening are needed for such progress to be sustainable (Jaysawal et al, 2022). The findings suggest that education expansion alone is not enough; education is needed that is consciously designed as an instrument of empowerment. In the Indonesian context, this urgency is getting stronger as human development indicators have improved, but gender gaps in empowerment, labor markets, and decision-making are still policy concerns (Diwakar, V. 2023). Thus, this research is important not only to strengthen the normative argument that women have the right to education, but to test and critically explain the extent to which education can really be a capital for increasing agency, independence, participation, and women's bargaining positions in achieving gender equality.

Based on this description, this study aims to critically analyze the role of education as a tool for women's empowerment and its contribution to the achievement of gender equality, by paying attention to the relationship between access to education, quality of learning experience, capacity building, women's agency, and participation in social, economic, political, and digital spaces. This research is expected to contribute to the development of education and gender studies by expanding the understanding that women's education success is not enough measured through indicators of access

and academic achievement, but also through educational ability to produce more equal capacity changes and social relations.

2. METHODS

This study uses a qualitative approach with the Systematic Literature Review (SLR) research type which aims to identify, evaluate, compare, and critically synthesize research results on education as an instrument of women's empowerment and the achievement of gender equality. The selection of SLR is based on the characteristics of the research objectives that do not solely measure the relationship between variables in a particular population, but seek to gain a comprehensive understanding of how education contributes to women's empowerment, through what mechanisms these influences take place, and what conditions strengthen or limit their contribution to gender equality. SLR is seen as appropriate because it is able to integrate findings from various studies that have different contexts, approaches, and characteristics so that it can produce a stronger synthesis of knowledge than relying on one individual study. The research process follows the principles of PRISMA 2020, which emphasizes transparency in the identification, screening, selection, and reporting of relevant studies (Anderson, E. W. (2022). The source of research data is in the form of scientific journal articles published in the period 2020–2025, obtained through academic databases such as Scopus, Web of Science, ScienceDirect, SpringerLink, and Google Scholar. The subject of the study is not directly individual, but rather research articles that discuss women's education, women's empowerment, gender equality, women's agency, digital education, economic participation, leadership, and social transformation; while the object of research is the conceptual and empirical relationship between education, women's empowerment, and gender equality. Articles are selected based on inclusion criteria, namely scientific research relevant to the focus of the study, published in the range of 2020–2025, available in full text, and have methodological information and findings that can be analyzed; while articles that are not relevant to the focus, in the form of non-scientific opinions, duplication, or do not provide adequate research information are excluded from the study corpus.

Data collection was carried out through documentation and systematic literature search using a combination of keywords such as education, women's empowerment, female empowerment, gender equality, women's agency, and gender transformative education. The main instruments of the research were data extraction sheets used to record the identity of the publication, research objectives, research design, subject characteristics, research context, educational forms/interventions, empowerment indicators, gender equality indicators, key findings, limitations, and research recommendations. The data were then analyzed using thematical-qualitative analysis through the stages of coding findings, grouping codes into categories, identifying themes, comparing findings, and critical interpretation of patterns of similarities, differences, contradictions, and gaps in evidence. The analysis does not stop at the collection of previous research results, but is directed to explain the transformative mechanisms of education, such as the improvement of knowledge, skills, confidence, agency, economic access, social participation, leadership, and women's ability to negotiate gender norms. The qualitative synthesis was chosen because the research focus contains social and structural dimensions that cannot be entirely reduced to a measure of statistical effects. Furthermore, the quality and relevance of the findings are critically compared based on the methodological strengths of each study, socio-cultural context, consistency of results, and the limitations of the research. This approach allows the research to come to conclusions that not only answer whether education plays a role in women's empowerment, but also how, under what conditions, and to what extent education can function as an instrument of transformation towards gender equality. Thus, there is methodological consistency between analytical-critical research objectives, data sources in the form of previous research, documentation-based data collection techniques, and analytical techniques in the form of thematic synthesis directed to find patterns, mechanisms, and research gaps. PRISMA 2020 also places systematic review as a method that can be used to synthesize the state of knowledge, identify weaknesses in primary research, and formulate the next research agenda.

3. FINDINGS AND DISCUSSION

The results of the study through the Systematic Literature Review (SLR) show that education has a strategic position as an instrument for women's empowerment, but these influences are neither automatic nor linear. A synthesis of recent research shows that education produces empowerment especially when education not only increases school length or academic achievement, but also expands capabilities, agency, knowledge of rights, decision-making ability, access to resources, and courage to negotiate gender norms. The findings of Hossain and Islam (2024), for example, after examining 20 studies from 1,438 publications, show a consistent tendency that higher levels of education are related to more egalitarian or liberal gender ideologies. Thus, education does not only function as individual capital, but also as a mechanism for shaping perspectives that can shift acceptance of traditional gender roles. However, the findings also show that changing gender attitudes is one of the pathways to empowerment, not evidence that education itself has resulted in substantive gender equality.

The second finding suggests that education strengthens women's agency in decision-making, particularly in the domestic sphere. Bui (2023) empirical evidence from education reform in Uganda shows that increased education due to the elimination of primary school fees has a positive impact on women's empowerment. Women who receive additional education are more likely to have a final say in decisions regarding their health, large household expenses, and visits to family or relatives. These results are important because they show that the benefits of education do not stop at increased knowledge, but can be translated into changes in the distribution of power in households. However, the study also found that increased education does not affect women's opportunities in the job market or attitudes towards gender-based violence. These findings reinforce the argument that education is a condition that enables empowerment, but is not the only determinant of gender equality.

The synthesis further shows that economic empowerment is one of the most powerful pathways linking education to gender equality. Education increases cognitive capacity, skills, productivity, and the ability to obtain information so that women have greater opportunities to enter economic activities and improve their bargaining positions. World Bank data shows that an average additional year of education provides an economic return rate of about 12% for women, compared to about 10% for men. This difference is increasingly seen in secondary and tertiary education, with higher educational returns for women than men. These findings show that women's education has significant economic value. However, it is critically important to emphasize that high educational returns are not synonymous with economic equality, as women can still face discrimination, job segregation, limited access to capital, domestic workloads, and barriers to leadership positions. This means that education increases capacity, but the structure of the job market determines the extent to which this capacity can be converted into empowerment.

The results of the study also found that education contributes to changes in gender norms and ideologies, but these mechanisms are strongly influenced by the social environment in which education takes place. Hossain and Islam (2024) found that research on the relationship between education and gender ideology uses a variety of perspectives, including human capital theory, gender role theory, patriarchal theory, intersectionality theory, empowerment theory, and socialization and reproduction theory. The dominance of these perspectives resulted in the finding that education tends to correlate with more egalitarian gender attitudes, but at the same time shows that educational institutions can have a dual function: challenging gender norms while reproducing them. Therefore, the results of the synthesis do not support the deterministic view that the higher a person's education, the higher his or her gender equality. Education is only transformative if the substance of the curriculum, pedagogical interactions, women's representation, leadership opportunities, and institutional culture also support equality.

Subsequent findings show that the quality and orientation of education is more decisive than just access to education. UNESCO (2024) shows that globally there has been progress in women's access to and achievement in education over the past two decades, but gender gaps still exist in technology access, digital skills, classroom security, and STEM education pathways. Technology can expand

learning opportunities for women, but at the same time it can reinforce gender stereotypes if technology design, algorithms, and digital environments do not pay attention to equality perspectives. Thus, the results indicate an important shift from the paradigm of "education for access" to "education for agency". Education that empowers women is not only education that ensures women are present in the classroom, but education that provides the ability to utilize knowledge, technology, information, and skills in making life choices and participating equally in society.

In the technology and STEM dimensions, the results of the synthesis show a paradox of women's educational progress. On the one hand, women's access to education has increased and the education gap at the primary level has narrowed significantly. The World Bank also notes that the gender gap in education has decreased significantly, particularly in primary education, but the gap still persists at certain levels and contexts. On the other hand, these advances have not fully resulted in comparable representation of women in technology and STEM fields. UNESCO (2024) shows that women are only about 35% of STEM graduates and about 25% of STEM-related jobs. The findings show that equal access to education does not automatically result in equality of social outcomes. Barriers such as stereotypes, lack of support, low confidence in certain fields, uninclusive learning environments, and work structures can still hinder women even though they have obtained relatively equal educational opportunities.

The results of the study also identified that digital education is a new dimension of women's empowerment. Technological developments allow women to gain access to learning resources, health information, social networks, job opportunities, entrepreneurship, and various services that were previously difficult to reach. However, these benefits are highly dependent on device access, connectivity, digital skills, security, and critical skills in using technology. UNESCO (2024) emphasizes that the digital divide based on gender is still a problem, while technology can also bring risks in the form of cyberbullying, gender stereotypes, and an unsafe digital environment for women and girls. Thus, digital literacy cannot be treated as a mere technical competence. In the perspective of empowerment, digital literacy must include women's ability to access, evaluate, produce, and use information independently and safely. These results expand the concept of education as a tool of empowerment from formal education to the mastery of competencies that allow women to participate in the digital society.

At the institutional level, research found that gender-responsive education is a distinguishing factor between education that simply increases participation and education that is truly transformative. Studies on gender equality in education show that barriers do not only come from the family or society, but can also arise through curriculum, teaching practices, gender representation, institutional policies, and organizational culture. In the Indonesian context, recent studies have also identified patriarchal social norms, socio-economic inequalities, gender bias in educational practices, and limited implementation of gender-responsive policies as obstacles that still need to be addressed systematically. This means that educational interventions that only increase the number of women entering school are not enough. Changes must touch the structure of education itself, including curriculum content, learning methods, leadership opportunities, division of roles, protection mechanisms from violence and discrimination, and family and community involvement.

The results of the synthesis also show an imbalance between improving education and transforming women's positions in power structures. Women are increasingly getting education, but their representation in leadership, decision-making, STEM fields, and certain economic sectors has not increased proportionately. UNESCO (2025) emphasizes that despite advances in women's education, women still face the problem of representation in educational leadership and decision-making space. These findings show a conversion gap, which is the gap between women's educational capital and the ability to convert that capital into power, authority, and social position. Therefore, indicators of women's educational success need to be expanded. School length, participation rates, and graduation remain important, but they are not sufficient to measure empowerment. Indicators such as decision-making ability, public participation, economic independence, access to technology, leadership, control

of resources, and the ability to resist discrimination need to be included in the evaluation of education that is oriented towards gender equality.

Overall, the results of the study produced three main analytical findings. First, education was shown to have a positive relationship with women's empowerment through increased knowledge, skills, agency, decision-making ability, economic opportunities, and changes in attitudes towards gender norms. Second, the relationship is not automatic, as the effectiveness of education is determined by the quality of education, curriculum design, institutional environment, economic access, technology, social norms, and the structure of opportunities after education. Third, there is a fundamental difference between educational equality and equality through education: educational equality speaks to women's opportunities to obtain education, while equality through education demands that education produce real changes in the distribution of power, resources, opportunities, and decision-making. This conclusion is in line with Hossain and Islam's (2024) synthesis which shows the positive relationship between education and more egalitarian gender ideology, but also affirms the need for more contextual research to explain the mechanisms of these relationships.

Thus, the results of the study reject the simple assumption that expanding access to education will by itself result in gender equality. The synthesized evidence actually shows that education is an enabling condition that can produce empowerment if it is accompanied by structural and cultural changes. Education is most effective as a tool of empowerment when it is able to change three layers at once, namely women's individual capacity, gender social relations, and institutional structures that regulate the distribution of opportunities. At the individual level, education improves knowledge and skills; at the relational level, education improves women's ability to negotiate and make decisions; while at the structural level, education needs to be followed by policies that eliminate discrimination and expand women's access to jobs, leadership, technology, and resources. Therefore, the results of the study place education not only as a means of individual mobility, but as an instrument of social transformation that has the potential to change gender power relations, noting that such transformation requires a supportive social, economic, digital, and institutional ecosystem.

The results of the Systematic Literature Review show that education does play an important role in women's empowerment, but the relationship cannot be understood simply as a linear relationship between the higher the education, the more empowered women are. The most consistent finding from the literature is that education expands women's knowledge, skills, cognitive capacity, confidence, decision-making abilities, and opportunities to access social and economic resources. Hossain and Islam (2024), through a systematic review of 20 studies, found a tendency that education is related to more liberal and egalitarian gender ideologies. These findings reinforce the findings of this study that education has a transformative function because it not only increases human capital, but also influences the way women understand positions, rights, and gender relations in society. However, these relationships need to be read critically. Education does not work in a neutral social space; the benefits of education depend on the ability of individuals to convert knowledge into agency as well as on the social structures that enable it to be realized. Thus, the findings of this study are more accurately interpreted that education is an enabling condition, not an automatic guarantee of achieving gender equality.

These findings can be explained through Human Capital Theory, which views education as an investment that increases a person's knowledge, skills, productivity, and capacity to obtain socio-economic benefits. In the context of women, increasing human capital through education is supposed to increase employment opportunities, income, and bargaining positions. However, the results of this study show that the human capital perspective alone is not enough to explain women's empowerment. Evidence Bui (2023) provides a very important illustration: education reforms in Uganda that increase the length of women's schooling do increase women's involvement in household decision-making, including decisions about health, large household expenditures, and visits to family, but do not result in significant increases in job market opportunities or changes in attitudes towards gender-based violence. The findings have similarities with the results of this study in terms of education increasing

capacity and agency, but at the same time show the difference between increasing individual capacity and changing social structures. Scientifically, this means that human capital theory needs to be complemented by an agency perspective and structure so that education is not reduced to mere investment to increase women's economic productivity.

These findings are more comprehensive when analyzed using the Amartya Sen Capability Approach. With this perspective, education can be understood as a means of expanding women's capability sets: education provides knowledge, skills, aspirations, and reflective abilities that enlarge life choices. However, the ownership of educational resources does not always result in equal functioning because there are *conversion factors* in the form of gender norms, social class, culture, geographical location, economic conditions, and family structure. Diwakar (2023) emphasized that a capability approach combined with an intersectional perspective can explain how gender factors, poverty, and structural conditions simultaneously limit a person's ability to transform educational resources into real freedom. This explains why two women with the same level of education can achieve different empowerment outcomes. Thus, the findings of this study expand the meaning of education: effective education is not just education that adds to what women have, but education that expands what women can actually do and choose.

This interpretation is even stronger when associated with Naila Kabeer's empowerment framework, which explains empowerment through three interconnected dimensions, namely resources, agency, and achievements. Education can function as a resource because it produces capital of knowledge, skills, information, social networks, and credentials. However, these resources only become empowerment when they produce agency, namely women's ability to set goals, negotiate, make decisions, and act. The next stage is achievement, which is a real change in the quality of life and social position of women. The literature on measuring women's empowerment shows that empirical research over the past two decades has indeed used the concept of empowerment more and more, but there are still problems in determining indicators and distinguishing between resources, agencies, and empowerment outcomes. Based on this framework, the results of the research can explain why education has a strong impact on some aspects of empowerment, but is more limited to others. Education may increase women's resources and agency, but changes in achievement require changes in the labor market, family structure, policies, social norms, and institutions. This is the reason why the improvement of women's education does not always go hand in hand with the improvement of women's position in economic and political structures.

Interestingly, the results of this study also show that there is a tension between education and changing gender norms, so the findings do not fully support the assumption that education always results in more egalitarian attitudes. Hossain and Islam (2024) found a positive trend between education and more liberal gender ideologies, but research on the expansion of higher education in China found the opposite result: the increase in higher education does not automatically strengthen women's egalitarian views; in certain contexts, these views are even weakened. The study explains that one of the causes is the deterioration of women's opportunities in the labor market relative to men, especially in married women and areas with high male-to-female ratios. This difference in results is theoretically important because it shows that education has no ideological effects independent of the structure of opportunity. When women obtain education but still face employment discrimination, unequal division of domestic labor, or social structures that limit mobility, then the expectations formed through education can clash with social reality. In other words, education can raise awareness about equality without always providing a structure that allows equality to be realized.

From this perspective, the findings of this study also explain why education has an influence on domestic decision-making, but does not always have the same influence on economic empowerment. Education improves cognitive and information skills so that women are better able to evaluate alternatives and express preferences in decision-making. The findings of Bui (2023) support this mechanism because additional education increases the likelihood that women will have a final say in a number of household decisions. However, domestic decision-making and access to the labor market

are two different arenas of power. Women can have a greater voice in the household but still experience barriers when entering the labor market due to discrimination, limited opportunities, norms regarding women's work, or domestic workload. Therefore, the results indicate an imperfect conversion of educational capabilities into economic power. Scientifically, these findings reinforce criticism of approaches that use education level as the sole indicator of women's empowerment.

The findings about education as a means of changing gender norms can also be explained through the perspective of gender socialization theory. Schools are not just places for knowledge transfer, but rather social spaces where students learn about roles, identities, authority, and social relations. If pedagogical curricula and practices feature women as intellectual actors, leaders, scientists, entrepreneurs, and decision-makers, education can disrupt gender stereotypes that have been formed in families and communities. Conversely, if textbooks, task divisions, teacher interaction patterns, and school leadership structures still reproduce traditional role sharing, education can actually perpetuate inequality. This explains why equal access to education does not always result in equal gender outcomes. The results of the meta-analysis by Yu et al. (2024) provide empirical support for this argument. Of the various gender equality interventions in STEM education, they found an overall positive effect of Hedges' g = 0.434, with different effectiveness according to the type of intervention; interventions at the environmental level and interpersonal interactions were even more effective than interventions that focused only on individuals. This means that changing gender equality is not enough to improve women's motivation or abilities individually, but must change the learning environment and social relations that surround women.

These findings also reinforce the perspective of gender-transformative education, which is education that not only provides equal opportunities to women and men, but deliberately identifies and changes norms, power relations, stereotypes, and structures that produce inequality. The results of the meta-analysis by Yu et al. (2024) show that teacher-based interventions and interpersonal interactions are one of the most effective approaches in improving gender equality in STEM education. Why is that? Because gender stereotypes are not only in the minds of individuals, but are produced and maintained through social interaction. A female student may have high academic competence, but if the teacher considers a certain field as a "male field", peers maintain stereotypes, or the school environment does not provide a sense of belonging, then these competencies do not automatically turn into aspirations and participation. Thus, the findings of this study shift the focus from "providing education to women" to "changing the education system so that women can use education to gain equal power and opportunities."

This problem is increasingly seen in the fields of STEM and digital education. The results of the study show that the progress of women's education is still faced with a representation gap in the fields of technology and STEM. UNESCO reports that women are only about 35% of global STEM graduates and about 26% of the workforce in the fields of data and artificial intelligence. This fact shows that the equal number of women entering education is not synonymous with equality in the choice of fields of study and occupation. Theoretically, this condition can be explained through gender role theory and stereotypical threat theory: educational choice is not only determined by academic ability, but also by the perception of what field is "appropriate" for women. Therefore, truly empowering education must create a counter-narrative to stereotypes, provide role models for women, provide an inclusive learning experience, and build an environment that makes women feel that STEM and technology fields are also their social space. The results of the meta-analysis by Yu et al. (2024) reinforce the argument that interventions at the level of the educational environment can produce greater effects than a purely individual approach.

The digital dimension also shows that women's empowerment in the contemporary era is increasingly determined by the ability to access and control technology. UNESCO (2024) shows that technology can help expand women's access to education, but the gender gap in access to technology and mastery of digital skills remains. Thus, digital literacy needs to be understood as part of women's capabilities, not just technical skills. Women with digital capabilities can access information, education,

markets, social networks, economic opportunities, and wider public participation spaces. However, technology can also strengthen inequality if women do not have the tools, connectivity, digital security, or critical skills to utilize information. This is why UNESCO in 2024–2025 develops digital skills education programs that are explicitly oriented towards women's empowerment and reducing the gender digital divide. Theoretically, this condition expands the concept of educational empowerment: education in the digital age not only frees women from information limitations, but also allows women to gain the ability to participate in the digital economy and public space.

If placed in the Indonesian context, the results of this study become even more relevant because gender issues are not only related to women's access to education, but also to the quality of education, social norms, economic structure, and implementation of gender-responsive policies. Recent systematic studies on gender equality in Indonesian education show that emerging issues include patriarchal social norms, socio-economic inequalities, gender bias in educational practices, and gaps between policies and their implementation. This reinforces the research findings that empowerment cannot be produced simply by increasing the number of women who receive education. Education needs to be built as an ecosystem that involves curriculum, teachers, families, educational institutions, policies, and society. Thus, the gap between women's educational attainment and gender equality does not simply indicate "educational failures", but shows a conversion gap between education capital and opportunity structures. Education can provide women with abilities, but social structures determine whether these skills can be used effectively.

Overall, the synthesis of this study shows similarities as well as corrections to previous research. The similarity lies in the evidence that education increases capacity, agency, knowledge, and a tendency towards more egalitarian gender norms, as found by Hossain and Islam (2024) and Bui (2023). The difference lies in the fact that the effects of education are not uniform on all dimensions of empowerment. Education is easier to improve cognitive capacity and decision-making agency than it is to change the structure of the labor market, leadership, social norms, or distribution of power. Findings from China even suggest that higher education can go hand in hand with a weakening of egalitarian views when women's economic opportunities deteriorate. Thus, this study provides scientific implications that education should be positioned as one of the mechanisms in the empowerment ecosystem, rather than as the sole determinant of gender equality.

The most important theoretical implication of this study is the need to integrate Human Capital Theory, Capability Approach, and Kabeer's empowerment theory in understanding women's education. Human Capital Theory explains how education increases competence and productivity; Capability Approach explains how these competencies can or cannot be converted into real freedom; while Kabeer's framework describes the process from resources to agency and ultimately achievements. The integration of the three results in a more adequate analytical model: education → resources/ capabilities → agency → empowerment achievement, with the process moderated by gender norms, economic structures, educational institutions, technology, social class, and cultural contexts. This view is in line with the study of MacKenzie and Chiang (2023) who criticize the limitations of human capital discourse because it tends to ignore the influence of social structures on agency and educational inequality. They assert that the capability approach is better able to explain how structures can limit the ability of individuals to transform education into agency. Therefore, the contribution of this research not only strengthens the claim that education is important for women, but provides an explanation for why these influences arise, why the effects are not uniform, and why new education becomes transformative when supported by structural change.

Ultimately, the results of the research lead to one critical proposition: education does not by itself empower women; education empowers when the knowledge and skills gained can be converted into the ability to choose, the ability to act, and the ability to influence social structures. Education that only increases school participation rates without changing stereotypes, power relations, economic opportunities, leadership, and access to technology will result in equality that is formal, not substantive. In contrast, education that integrates gender-responsive pedagogy, agency strengthening, digital

literacy, economic skills, women's representation, mentoring, and changes in the institutional environment is more likely to result in sustainable empowerment. Thus, the findings of this study shift the paradigm from "women must be educated to be empowered" to "the education system must be transformed so that education can be a resource that women can truly use to gain agency and change inequality." These shifts have important implications for research and policy because the measure of women's educational success should not stop at academic access and achievement, but also include decision-making skills, economic independence, public participation, leadership, technological mastery, and the ability to challenge discriminatory gender norms.

4. CONCLUSION

The study titled "Education as a Tool to Empower Women and Achieve Gender Equality" concludes that education has a substantive contribution to women's empowerment, but its influence is not automatic, linear, and universal. The literature synthesis shows that education works primarily through the improvement of knowledge, skills, reflective capacity, self-confidence, agency in decision-making, access to economic resources, and women's ability to negotiate gender norms. These findings show that education is more accurately understood as an enabling condition for empowerment, rather than a single determinant of gender equality. Scientifically, the contribution of the research lies in strengthening the integrative framework that connects education as a resource, increasing capability, agency formation, and achieving empowerment, while showing that these processes are influenced by social structures, patriarchal culture, economic conditions, institutional environment, and digital divides. Thus, equal access to education is not synonymous with substantive equality; new education has transformative power if it is able to change individual capacity while expanding women's space to use that capacity in social, economic, and public life.

The main limitation of this study lies in the use of Systematic Literature Review, so the conclusions depend heavily on the quality, methodological diversity, geographical context, and empowerment indicators used by previous research. Variations in the definition of women empowerment, differences in measurement instruments, and the dominance of quantitative research in some literature also limit the ability of research to explain women's subjective experiences in depth and prove causal relationships in specific contexts. Therefore, further research is recommended to use mixed methods or longitudinal research to examine how education gradually changes women's agency, economic independence, public participation, leadership, and decision-making.

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