IS IT POSSIBLE TO PREVENT RADICALISM THROUGH WOMEN'S PARTICIPATION IN STEM (SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS) EDUCATION?: CHALLENGES AND OPPORTUNITIES

Muhamad Imaduddin

Institut Agama Islam Negeri Kudus
imad@iainkudus.ac.id

ABSTRACT

Women and education as an effort to prevent radicalism are connected. If the international community tries to engage education as part of a strategy to reduce terrorism, it should be necessary to consider the content of education. One of the SDGs mandates in "equality" is the importance of women to be involved in mastering STEM. This study reveals how the challenges and opportunities for women's relationships and participation in STEM education can make it possible to prevent the emergence of radicalism. This was carried out by exploring several kinds of literature related to the level of women's participation and the usefulness of STEM education. The role of women is shown by their participation as learners, educators, and directly involved in the STEM industry as a workforce. As an educator, women's participation occupies a much better position than workforces. STEM content can be integrated with radicalism issues to be resolved in the classroom to practice critical thinking skills. Women as STEM workers face obstacles that have nothing to do with their abilities, such as stereotyping, discrimination, violence, and abuse. Religious education integrated with STEM education provides an opportunity to reduce radicalism values with women taking part in it.

Keywords: Radicalism; Women's Participation; STEM Education.

ABSTRAK

Terdapat keterkaitan antara perempuan dan pendidikan sebagai upaya untuk mencegah radikalisme. Jika masyarakat internasional mencoba untuk melibatkan pendidikan sebagai bagian dari strategi untuk mengurangi terorisme, konten pendidikan perlu dipertimbangkan. Salah satu mandat SDGs dalam kesetaraan adalah pentingnya perempuan untuk terlibat dalam penguasaan konten STEM. Studi ini mengungkapkan bagaimana tantangan dan peluang pada keterkaitan perempuan dan partisipasi mereka dalam pendidikan STEM sehingga dapat memungkinkan untuk mencegah munculnya radikalisme. Kajian ini dilakukan dengan mengeksplorasi beberapa literatur yang terkait dengan tingkat partisipasi perempuan dan manfaat pendidikan STEM sehingga dapat menunjukkan adanya peluang dan tantangan dalam pencegahan radikalisme. Peran wanita ditunjukkan oleh partisipasi mereka sebagai pembelajar, pendidik, dan keterlibatan secara langsung sebagai tenaga kerja di industri STEM. Sebagai seorang pendidik, partisipasi perempuan menempati posisi yang jauh lebih baik daripada tenaga kerja. Konten STEM dapat diintegrasikan dengan isu-isu radikalisme yang harus diselesaikan di kelas untuk melatih keterampilan berpikir kritis. Perempuan sebagai pekerja STEM menghadapi hambatan yang tidak ada hubungannya dengan kemampuan mereka, seperti stereotipe, diskriminasi, kekerasan dan pelecehan. Pendidikan agama yang terintegrasi dengan pendidikan STEM memberikan kesempatan untuk mengurangi nilai-nilai radikalisme dengan perempuan yang mengambil bagian di dalamnya.

Keywords: Radikalisme; Partisipasi Perempuan; Pendidikan STEM.

A. Introduction

Radicalism is the root of the emergence of terrorism. Radicalism is an attitude that craves total change and is revolutionary by overturning the values that exist drastically through violence and extreme actions. Several characteristics can be recognized by radical attitudes and understandings. 1) intolerance (do not want to respect the opinions & beliefs of

others), 2) fanatics (always feel right themselves; consider others wrong), 3) exclusive (distinguish themselves from Muslims in general) and 4) revolutionary (tend to use violent methods to reach the destination) (Badan Nasional Penanggulangan Terorisme, 2016)**.** Radicalization leading to extremism and terrorism is not a new event, but the process of spreading is happening now with alarming scale and speed (High-Level Commission Expert Group on Radicalisation (HLCEG-R) for the European Commission, 2018)**.** Radicalization is a gradual and complex process in which an individual or group understands radical ideologies or beliefs in which they accept, use or condone violence, including acts of terrorism to achieve specific political or ideological goals (European Commission, 2019).

Women have a crucial role in a radical group. Women have maintained and spread ideology, supported their husbands, raised their children according to the ideology adopted, recruited others, helped create alliances through strategic marriage, raised funds & sent messages, weapons & goods. On a smaller scale, women have taken an operational role in planning and carrying out attacks, including suicide bombers (De Leede, 2018). Women are not the most common perpetrators of violence, but women are part of many extremist movements. Based on the terrorist groups' data, for example, shows that women have around 20 to 30 percent of membership (Nacos, 2005). The status of women varies within extremist societies, in some cases, they function as strong leaders and recruiters, and in other cases, they act as agents who are equally strong in the private sphere as members of the community, mothers, wives, and sisters. Women are uniquely effective in affecting and educating their communities and in encouraging or discouraging people from receiving the benefits of extremist activities leading to radicalism (Alexander, 2017). Although women can promote extremism and radicalism in their groups, they may also be able to overcome them. A mother's deep understanding of her children can provide tremendous potential for children's lives through family education activities.

Indonesian women are now vulnerable to being exposed to radicalism and many are recruited by radical groups. Several factors make Indonesian women vulnerable to radical understanding. This includes religious, social, economic, and cultural factors that have marginalized Indonesian women. An example of the case that occurred in Indonesia is how women in rural areas with low levels of education and economy are ultimately involved in recruiting ISIS (Islamic State of Iraq and Syria). The case that occurred was that many girls were married to combatants. If her husband, a combatant, dies in battle, she will be married again by another combatant resignedly (Kusuma, 2019). Research by the Institute for Policy of Conflict (IPAC) in 2017 showed that Indonesian women have changed their role in the radicalism movement to an extreme level, namely as suicide bombers. This phenomenon arose after two women who were former migrant workers were arrested for being suicide bombers and affiliated with ISIS (Amindoni, 2018). Indonesian women migrant workers are also recruited through social media by utilizing their desire to deepen religious knowledge. They are trapped in radical recitation groups in cyberspace, then they are used as recruiters as well as a source of funding for radical groups. The fact of the involvement of women in the radicalism movement in Indonesia is quite common, even in the Surabaya bombing case the perpetrators not only involved women but also young girls. Data from CSAVE even showed that there are 13 names of women serving their sentences for engaging in acts of terrorism. The Indonesian Ministry of Social Affairs reported that 78% of ISIS members are women and children spread across 12 provinces (Kholifah, 2017)

Solving the problem of terrorism is not only completed with enforcement and legal action (hard power) but the most important thing is touching the upstream issues with prevention efforts (soft power). Overall, there is little optimism that improving the quality of education and reducing the amount of poverty will lead to a reduction in the amount of terrorism internationally, without other changes (Krueger & Malečková,

2003). Stern (2000) observed that many madrasahs, or religious schools, in Pakistan, were funded by wealthy industrialists, and many of these schools deliberately educated students to become pedestrian soldiers and elite operations in extremist movements throughout the world. He further reported: "Most madrasahs only offer religious teaching, ignoring mathematics, science, and other secular subjects that are important for functioning in modern society." This study shows that if the international community tries to use education as part of a strategy to reduce terrorism, it should not limit itself but also must consider educational content.

Education becomes an important position in the formation of understanding terrorism or anti-terrorism. Terrorism occurs because a group of people is educated informally with the knowledge that they must follow certain paths for their lives to be successful and not commit the greatest sin of all time. There is an interesting study that nearly half (48.5%) of jihadists recruited in the Middle East and North Africa have higher education, according to a 2007 analysis by Diego Gambetta quoted in Immunising the Mind, a new paper published by the British Council; 44% have a degree in engineering. Among western-recruited jihadis, the figure rose to 59% (Vallely, 2015). Data showed that from 40 jihadists studying at universities abroad, 27 were engineers. In another data set, consisting of 71 extremists born or raised in Western countries, 32 engineers. Gambetta & Hertog (2016) showed that most engineers are not recruited into extremist movements; they joined themselves. Most of the engineers involved in the 228 plots acted as founders or group leaders; only 15% of them make bombs.

Engineering is one part of STEM (Science, Technology, Engineering, and Mathematics) education which is now starting to be upgraded in various countries in the world. STEM education in several countries has issues related to gender equality. Knowledge and skills of science, technology, engineering, and mathematics (STEM) are needed for students to face the 21st-century era. The current skills for workforce include the use of

interdisciplinary approaches to problem-solving, technology, innovation, and communication with various media tools (Young et al., 2011). STEM is a way of thinking philosophically about how educators at all levels - including parents - must help students to integrate knowledge across disciplines and encourage them to think in a more connected and holistic way (Sneideman, 2013). Through this study, it was attempted to discuss how the linkage between the role of women in STEM education and the prevention of radicalism, especially what happened in Indonesia. This study is a literature study conducted by taking an inventory of data on cases of women's involvement in radicalism in Indonesia, women's active participation in the STEM field in Indonesia taken from various sources. Library searches are performed on an electronic database. Furthermore, the literature is broken down into more detail by processing the parts that support this study. Collaborative data from several kinds of literature was also used to present support for the results of this study. The results of the data description are then analyzed to illustrate women's participation in the STEM field. Thus, this paper will illustrate how the challenges and opportunities for women in the STEM field and their relevance to preventing radicalism.

B. Discussion

1. Women's Participation in STEM in Indonesia

UNESCO found that women dominated men in undergraduate and postgraduate education in the field of science, the second percentage reaching 53%. However, this number dropped dramatically at the doctoral level to 43%. Finally, only 28% of women continue to become researchers in science globally, a very small percentage compared to men who reach 72% (United Nations Educational & Scientific and Cultural Organization, 2016). A similar phenomenon is also found in Indonesia where the percentage of women who pursue undergraduate education in the field of science exceeds that of men, but at the doctoral level the numbers are running low as

shown in Table 1. The percentage difference between male and female doctoral students also differs greatly, 65% compared to 35%. The gap continues in the world of research and research: women are a minority in all research sectors. The private research sector, for example, is dominated by 82% of men.

Table 1. Participation in STEM in Indonesia

Participation	Male	Female
Education		
Bachelor	48%	52%
Master	N/A	N/A
Doctoral	65%	35%
Researchers		
Public Sector	70%	30%
Academic Institution	64%	36%
Private Sector	82%	18%

Source: Processed from (United Nations Educational & Scientific and Cultural Organization, 2016)

In the past decade, Indonesia has increased gender equality in access to education. Indonesia is on track to fulfill the Sustainable Development Goals for universal basic education and gender parity. Gender parity has now been achieved at all levels of the education system (ACDP Indonesia, 2013). An interesting study by Stoet & Geary (2018) showed that countries with a majority Muslim population with low gender equality scores such as Turkey and Algeria have more female graduates in the STEM field than Finland, Norway, and Sweden are often considered to apply the principle of gender equality. Furthermore, this study illustrated that STEM graduates who are female in Indonesia are more numerous than men, even though the score of gender equality is not as high as those of the North European countries. The Government of Indonesia also continues to provide equal opportunities for men and women. These efforts include equal access to education, starting from the level of Elementary School to Higher Education.

The Ministry of Research, Technology, and Higher Education of Indonesia noted that the number of female active students in 2018 was 3,060,119 students, more than the male students totaling 2,624,699 students (Kementerian Riset Teknologi Dan Pendidikan Tinggi, 2018). Based on data obtained from BPS-Statistics Indonesia (2018) BPS-Statistics Indonesia (2018), The percentage of women in higher education is also evidenced by the increase in the Gross Enrollment Rate (GER) in higher education. There was an increase in women's GER starting in 2011 and since 2012, the numbers dominated men as shown in Figure 1. In 2016, there was a significant difference between the GER of women in higher education compared to men. This increase is an improvement in reducing gender disparities in the education sector. Although it still faces many challenges, gender mainstreaming in higher education appears to be increasing.
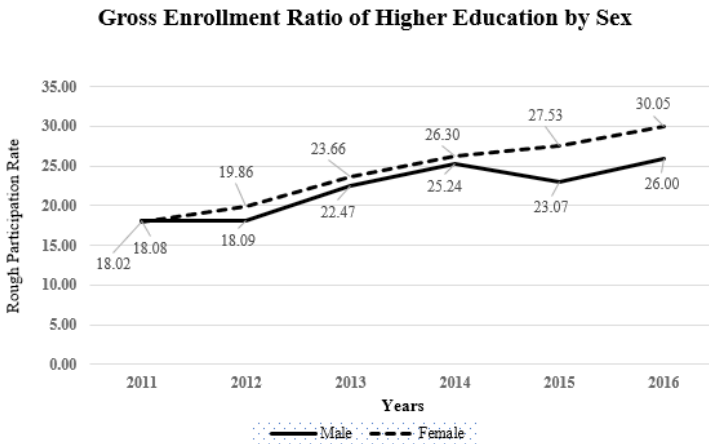

Figure 1. Gross Enrollment Ratio by Sex, 2011-2016. Data is processed from BPS-Statistics Indonesia (2018).

The UNESCO report (2015) found that Indonesian women were well represented in several fields of STEM education. Indonesian women tend to favor pharmaceutical and biological disciplines and become the majority in the fields of medicine, chemistry, and mathematics. The smallest percentage was found in the field of physics, represented by 38.90 percent of women,

while the percentage of men reached 61.10 percent as shown in Figure 2. UNESCO also explained that women's preferences in the fields of medicine, chemistry, and pharmacy have to do with social construction, parental influence, and gender associations in employment. The fields of physics and engineering are associated with men (UNESCO Bangkok Office & Korean Women's Development Institute, 2015).

Proportion of male and female students in STEM

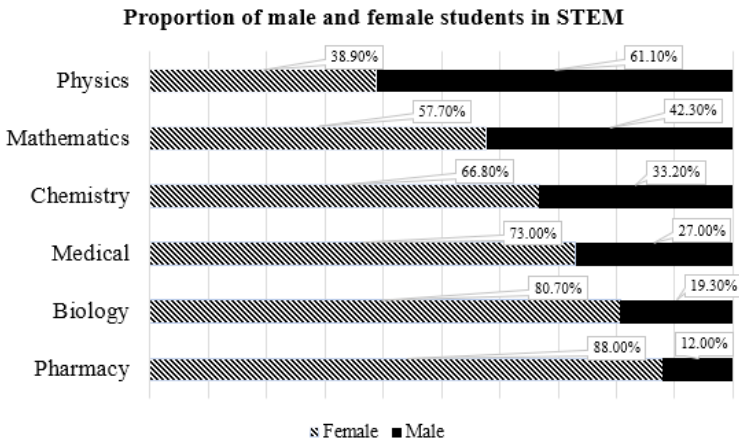|	Female	Male
Physics	38.90%	61.10%
Mathematics	57.70%	42.30%
Chemistry	66.80%	33.20%
Medical	73.00%	27.00%
Biology	80.70%	19.30%
Pharmacy	88.00%	12.00%

Figure 2. The proportion of male and female students in STEM. Data is processed from UNESCO Bangkok Office & Korean Women's Development Institute (2015).

This is in line with the findings of PISA (2015) that 22 percent of Indonesian women want to pursue careers in science, while men are only 9 percent. As many as 9 out of 10 women who want to pursue careers in the field of science also want to pursue careers in the health sector and become general practitioners, veterinarians, or nurses (professional health professionals) (Organisation for Economic Co-operation and Development, 2016). In all countries studied by PISA, women do tend to like the health sector, while men prefer professions in the fields of Information, Communication, and Technology (ICT), scientists, and engineering. On average in OECD countries, only 0.40 percent of women want to work in the ICT field, compared to men whose percentage reaches 4.7 percent.

2. Women's Participation in the Education Sector of Indonesia

In the education sector, women's role becomes important as an educator at various levels of education. Data obtained from the Ministry of Education and Culture, as well as the Ministry of Research, Technology, and Higher Education, illustrated the role of women at various levels of education as shown in Table 2 and Figure 3. The role of women is very evident in the level of early childhood education to the middle level. The higher the level of education, the proportion of women as educators decreases. This is in line with the previous report which stated the results that female scholars in the field of science outnumbered men, but were increasingly depleted at the doctoral level. Thus the proportion of educators at the college level is dominated by men.

Table 2. The number of educators at various levels of education based on sex in Indonesia

Educational Level	Male	Female	Total
Kindergarten (TK)	10,870	318,232	329,102
Elementary School (SD)	469,957	1,015,645	1,485,602
Junior High School (SMP)	246,255	381,797	628,052
Senior High School (SMA)	126,507	181,244	307,751
Vocational High School (SMK)	140,393	151,819	292,212
Higher Education	139,096	108,173	247,269

Sources: Data is is processed from (a) Kementerian Riset Teknologi Dan Pendidikan Tinggi Republik Indonesia (2017), (b) (Pusat Data dan Statistik Pendidikan dan Kebudayaan, 2018), and (c) Pusat Data dan Statistik Pendidikan dan Kebudayaan (2017).
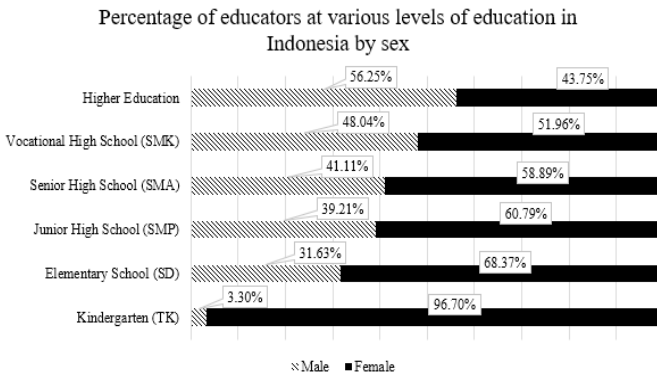
Figure 3. Percentage of educators at various levels of education in Indonesia by sex. Data is is processed from (a) Kementerian Riset Teknologi Dan Pendidikan Tinggi Republik Indonesia (2017), (b) (Pusat Data dan Statistik Pendidikan dan Kebudayaan, 2018), and (c) (Pusat Data dan Statistik Pendidikan dan Kebudayaan (2017).

3. Women in STEM Education on Preventing Radicalism: Challenges and Opportunities

Education is a crucial thing to suppress the existence of radicalism that occurs in certain communities. A distinction is needed between the two types of interventions used by the education sector: 1) providing quality access and education to all people to address problems related to marginalization, inequality, unemployment, etc., or in other words, some of the "root causes" from radicalism that leads to terrorism and violence; and 2) educational programming that focuses on populations that have a higher probability of being attracted to radicalism and violence (eg followers of certain religions, ethnic groups or clans, those who have family relationships with radicals, *etc.*).

In the field of prevention, the National Counter-Terrorism Agency of Indonesia (Badan Nasional Penanggulangan Terorisme or BNPT) uses the two strategies. First, counter-radicalization, namely the effort to instill Indonesian values and non-violent values. In the process, this strategy is carried out through formal and non-formal education. Counter radicalization is directed by the general public through collaboration with religious leaders,

educational figures, community leaders, traditional leaders, leaders of youth, and other stakeholders in providing national values. The second strategy is deradicalization. The field of deradicalization is aimed at sympathizers, supporters, core and militant groups carried out both inside and outside prison (Badan Nasional Penanggulangan Terorisme, 2016). Based on this explanation, it can be seen that education has a stake in the process of preventing terrorism. The education area is often one of the development interventions that is most supported by the government and donors as a way to strengthen peace efforts in post-conflict recovery and address long-term human development needs. Prevention approaches are needed both in countries that have never had a terrorism conflict or a country that is in a very tenuous post-conflict recovery phase (De Silva, 2017).

a. Women as STEM Learners

The STEM field is very important for sustainable development because they enable us to find solutions to threats posed by global challenges such as climate change, global health epidemics, and increased income inequality. The Sustainable Development Goals highlight the importance of the STEM field for a more peaceful and prosperous world (SDGs), as well as gender equality in terms of ensuring equal access to higher education for women and men. Despite the increasing demand for STEM professionals, women, who represent more than half of the world's population, are often underrepresented in this field. According to a survey conducted by the Labor Group in 2015, there was a global "talent shortage" of 38 percent, with ten of the hardest jobs to fill including several STEM-related professions. At the same time, the UNESCO Institute for Statistics (UIS) estimated that women were only 28 percent of scientific researchers worldwide (UNESCO Asia-Pacific Education Thematic Brief, 2016). Factors influencing low female participation in STEM:

1) There are fewer female educators in subjects related to STEM and at higher levels of education
2) Training of gender-responsive teachers in STEM-related subjects is lacking
3) Lack of resources and equipment with the potential to stimulate interest in STEM subjects among girls.
4) Teaching and learning material still absorbs gender stereotypes
5) Career counseling, scholarships, and gender-responsive mentoring opportunities are still limited
6) Socio-cultural, educational and other factors lead to gender differences in subject preferences and perceived performance
7) Women can experience a higher level of anxiety around math and science subjects
8) Girls tend not to be encouraged to study STEM subjects by parents and teachers
9) Women's participation in the labor market and wages remain uneven
10) Stereotypes and gender norms cause women in STEM to be concentrated in certain jobs more than others
11) Lower female participation in the STEM field is equivalent to fewer female role models for girls.

Jiang *et al.* (2014) studied cross-national comparisons of gender differences in the enrollment in and completion of science, technology, engineering, and mathematics Massive Open Online Courses (STEM MOOC). In their study, 25 countries were participating in STEM MOOCs. Based on the study it can be found that 54,214 female students chose to enroll in at least one STEM MOOC, consisting of 24.16% of STEM MOOC students (n = 224,318). By country, the percentage of female students ranges from 5% in Bangladesh to 38.92% in the Philippines. Indonesia and the Philippines are the top two developing countries on student participation in STEM

MOOCs in developing countries. Indonesian women's participation as learners in the STEM field shows a good representation and the absence of a significant gender gap in the STEM education field.

Indonesia is one of the countries with literacy levels that are still below international standards in the STEM field. Based on PISA results in 2015, Indonesia is in the 10th lowest ranking, ranking 62th out of 72 countries with an average score of 395 (The OECD Programme for International Student Assessment, 2016). In 2018, in the category of reading, science, and mathematics, Indonesia's score is also relatively low, ranking 74th from 79 countries. In the aspect of science literacy, Indonesia scores 396, far below the average OECD score of 489 (The OECD Programme for International Student Assessment, 2019). Thus, various efforts to improve student literacy are important. Seeing how women actively participate as learners in the STEM field, the portion of women's contribution becomes important. Science literacy is an understanding of (1) the importance of scientific concepts and processes, (2) the practices used to develop scientific knowledge, (3) the contribution of science to culture and society, and (4) the application to our lives (Hackling *et al.*, 2017). Scientific literacy is crucial in terms of its sustainability in modern society (Turiman *et al.*, 2012), especially if it is associated with cases of radicalism that lead to acts of terror with the use of various technologies. This literacy is in line with the acquisition of process skills that affect individual, social and global life (Aktamis & Ergin, 2008).

A study conducted by Mia Bloom, a Professor of Communication at the University of Georgia, in 2017 stated that there is a trend of a significant increase in the role of women in terrorism (M39, 2019). Specifically, Mia explained that the ISIS terrorist network is increasingly using women to spearhead terror attacks. In the

Indonesian context, in the last three years, acts of terrorism involving women as the main actress have also become an inevitable trend. There is a hidden potential of women who are not possessed by men in carrying out terrorist activities. According to Mia Bloom, women are hidden weapons that are ideal for terrorist groups because of their inclination that is not easily suspected. In the Indonesian context, it seems that Bloom and Bodziany's explanation is quite reasonable (M39, 2019). The level of education of women is still low and the roots of patriarchal culture which are rooted in religious doctrine that overwhelms many Indonesian women, make them easily exposed to radical indoctrination.

Harmonization of gender in STEM (Science Technology Engineering and Mathematics) education is very necessary. Women have special abilities such as the ability to listen, empathy, and high adaptability. Therefore, soft power women will give different colors in STEM education (Marwati, 2016). The involvement of women in STEM education can trigger an increase in the quality of education of a country, including Indonesia. The acts of terrorism that originated from radicalism have a small relationship even though it is tentatively based on studies conducted by Krueger & Malečková (2003).

b. Women as STEM Educators

Women can be powerful agents of change and can play an important role in detecting the early signs of radicalization, intervening individuals before engaging in violence and delegitimizing brutal extremist narratives (Alexander, 2017). In this case, women act as educators both formally, informally, and non-formally. Women have started their educational careers in the smallest environment, namely the family. Women provide character values that are adopted by their children, including giving values to stay away from aspects that

lead to radicalism, terrorism, and violence. STEM can also begin to be taught in the family environment for children from an early age such as cooking activities, repairing the furniture, or through activities to maintain a home.

At the formal level, women have access to STEM at various levels of education both at the pre-school and tertiary level. The number of educators at the pre-school level is still minimal and dominated by women. This shows the role and contribution of women in the field of education have begun since early childhood education. Women give meaning to things around children to shape children's character. STEM education should not be confused with the knowledge that it is separate from other scholarship but must be combined with various disciplines and adapted to the socio-cultural context of society. Thus, STEM education is also able to influence character formation in children (Gardere *et al.,* 2015; Sardjijo & Ali, 2017). Through the formation of character in children from an early age, or to students at the school level, the roots of radicalism are expected to be prevented. The role of women as educators and mothers to provide gender-responsive learning by eliminating aspects of stereotyping, subordination, and marginalization, provides an opportunity to increase the participation of students in pursuing things they aspire to without gender bias waiting (Gunderson *et al.,* 2012).

As learners and educators, women have a major contribution to the formation of character through STEM literacy. Literacy in the STEM field relates to an understanding of the relationship of the STEM field with daily life, the environment, as well as local and global communities. A deep understanding of the positive aspects can lead to the formation of character that can prepare a reliable workforce in the field of STEM and a deep understanding of the attitude of anti-radicalism. The teaching and learning process with the STEM

approach equips students with not only knowledge but also skills and values (Ramli & Talib, 2017). The skills emphasized in STEM learning are 21st-century skills that include life & career skills, learning & innovation skills, and information, media, & technology skills (Imaduddin & Zuhaida, 2019; Khalil & Osman, 2017; Ng, 2019). STEM learning has the opportunity to be integrated with ideological values that exist in Pancasila, religion, and values that develop in the traditional culture of the community (Blackley et al., 2018; Imaduddin & Zuhaida, 2019). The teaching and learning process of STEM with a good understanding of values including peace, non-violence, and tolerance can foster a character that is certainly anti-radicalism. The mechanism of the role of women in STEM as shown in Figure 4.
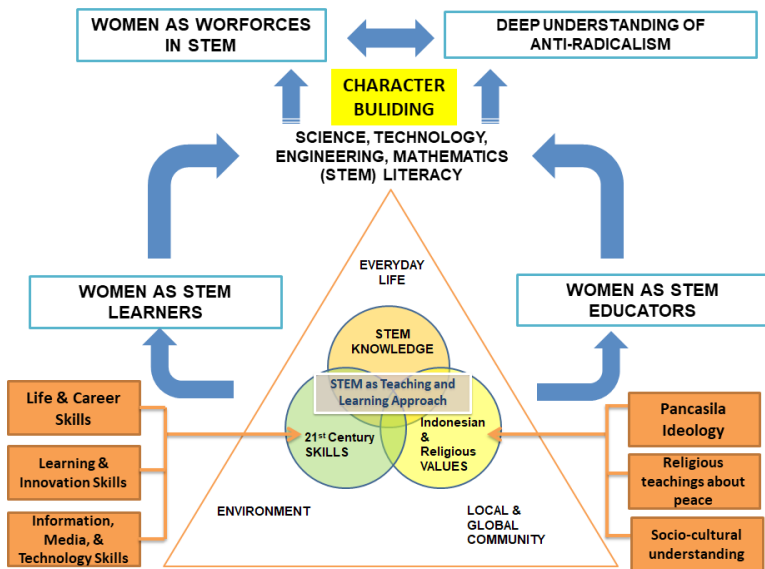
Figure 4. The mechanism of the role of women in the STEM field that leads to literacy as a foundation of character building for workforce preparation and understanding of anti-radicalism

As one of the foundations of the curriculum, the STEM approach to practice is expected to produce students

with scientific literacy that are following the needs of the workforce in the STEM field (Ramli & Talib, 2017). This approach requires the elimination of boundaries between scientific disciplines involved in solving problems in the environment, daily life, and society. The challenge is that in addition to having basic scientific disciplines, a formal educator must ultimately have competence in planning, implementing, and assessing or evaluating (Bozkurt Altan & Ercan, 2016) on STEM literacy that involves knowledge, skills, and values. The professional development of formal educators is needed to ensure that their level of competence remains up-to-date with the changing trends of the times (Niemi, 2015). Without it all, formal educators will find challenges and difficulties in applying the STEM approach in schools (Siew *et al.*, 2015).

c. Women as Workforces in STEM

Poverty at the national level indirectly affects the tendency for a civil war that can ultimately lead to terrorism (Krueger & Malečková, 2003). The welfare of the country is influenced by how the employment conditions exist in generating income at the basic level. The workforce in the STEM field can also influence how the level of welfare and poverty that occurs in a country.

Women globally and in Indonesia dominate men at the higher education level, namely undergraduates. Unfortunately, this dominance began to shrink at the postgraduate level, and in the end the doctoral level. STEM professionals are also still dominated by men, both globally and nationally. The OECD report said that stereotypes of masculinity inherent in STEM and patriarchal culture in the older generation, such as the perpetuation of the nature of women as family administrators, led to the lack of representation of women in this field (Organisation for Economic Co-

operation and Development, 2017). Women as STEM workers face obstacles that have nothing to do with their abilities, such as stereotyping, discrimination, violence, and abuse.

Responding to this, the OECD recommended that gender equality, especially in marriage and parenting, be more heard. The provision of equal maternity leave or parental leave between women and men as enacted in Scandinavian countries and France is an advance. Besides, reducing the career choice for girls and boys can also reduce the gender gap between women and men in the STEM field. There is nothing wrong with women who aspire to become architects and men who want to become nurses.

For Indonesia, we need to reduce the stigma that women are only suitable in certain fields of education. It takes a long time to go beyond the myth of gender in society. However, the participation of Indonesian women in the STEM field needs to be increased because the government has committed to equitable access and quality of education for every Indonesian child. This is also in line with a quality Human Resources (HR) development program, which certainly does not distinguish between men and women. After all, achieving gender equality is an aspiration of the Indonesian people for a long time, equality in the STEM field is also part of these ideals. Through increasing the number of female workers in the STEM field, stereotypes, subordination, and marginalization of women have declined. Thus, the roots of the notion of radicalism caused by inequality and injustice can be muted.

Prevention of the continued involvement of women in extremism is to synergize the role of women in the field of STEM with education through women's peace schools, which aim to

strengthen knowledge and skills about conflict transformation and peacebuilding and fight radical ideologies, community-based learning for mothers, and strengthen women's leadership. Also, there is a need for synergy between the government and civil society in dealing with terrorism using gender analysis, women's and children's rights.

C. Conclusion

The role of women is shown by their participants as learners, educators, and directly involved in the STEM industry as a workforce. As educators and learners, women's participation occupies a far better position than the workforce. In the learning process in the STEM field, there are no significant gaps in the process. However, in certain societies, the level of education of women is still low and the patriarchal culture rooted in religious doctrine still largely limits the participation of Indonesian women, thus making them easily exposed to radical indoctrination. Formally, STEM content can be integrated with the problem of radicalism to be solved in the classroom to practice critical thinking skills. Here women also show their active participation as educators, both in formal and informal STEM learning in the family environment. Women as STEM workers face obstacles that have nothing to do with their abilities, such as stereotypes, discrimination, violence, and harassment. Nevertheless, the active participation of women at the STEM education level has the opportunity to increase the elimination of existing stereotypes and discrimination.

Religious education integrated with STEM education provides an opportunity to reduce the values of radicalism, in which women take part in the process of implementing education in the formal environment or schools, families, and communities. Further research can attempt to identify STEM content and opportunities for implementation in education that leads to anti-radicalism in both formal and informal environments.

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