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Gender Equality in AI-Supported Military Education: Literature Insights and Evidence from Turkish Institutions

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Abstract: Artificial Intelligence (AI) is increasingly discussed as a transformative tool for professional military education, particularly through simulations, adaptive learning platforms, and data-driven assessment systems. However, the integration of AI into military education has largely proceeded without sufficient attention to gender equality, despite extensive evidence that algorithmic systems can reproduce and amplify existing social biases. Drawing on interdisciplinary literature on AI and education, feminist military studies, and international policy frameworks such as NATO's Principles of Responsible Use and the Women, Peace and Security (WPS) agenda, this article critically examines the implications of AI-supported military education from a gender perspective.

The study combines a comprehensive literature review with qualitative field research conducted at three major military educational institutions in Türkiye: the National Defence University, the NATO Centre of Excellence for

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Defence Against Terrorism (COE-DAT), and the Turkish Gendarmerie and Coast Guard Academy. Findings reveal a dual gap: while AI-supported educational tools are largely absent in these institutions, gender perspectives and WPS principles are also almost entirely missing from curricula and training practices. This absence raises concerns about institutional readiness for the future integration of AI, particularly regarding the risk that gender-blind environments may inadvertently embed bias into emerging AI-supported educational systems. The article argues that aligning AI adoption with gender-sensitive frameworks is essential for maintaining the integrity, inclusivity and effectiveness of military education. It concludes by offering recommendations for integrating AI and gender equality in a mutually reinforcing manner, in line with NATO commitments and broader ethical standards.

Keywords: Artificial Intelligence, Military Education, Gender Equality, Women, Peace and Security.

Introduction

Artificial intelligence (AI) is increasingly shaping debates on the future of professional military education (PME), particularly through its potential to enhance simulation-based training, personalise learning pathways, and support data-driven assessment. NATO and allied defence communities frequently present AI-enabled educational technologies as tools that can improve efficiency, realism, and adaptability in preparing military personnel for complex operational environments. Yet, alongside these anticipated benefits, critical questions remain regarding the ethical and social implications of AI-supported education, especially in relation to gender equality.

Research on AI in civilian education demonstrates that algorithmic systems are not neutral. When trained on historically skewed datasets or embedded

within institutions marked by structural inequalities, AI tools can reproduce and even intensify existing biases. Automated assessment, predictive analytics, and adaptive learning systems may disadvantage women and other underrepresented groups through subtle but systematic mechanisms, challenging the assumption that AI-driven education inherently promotes objectivity or fairness.

Such concerns are particularly salient in military education. Military academies are deeply institutionalised environments characterised by rigid hierarchies, codified norms of leadership, and historically masculine organisational cultures. Although women's participation in military education has increased in many countries, they remain significantly underrepresented, and feminist military scholarship consistently documents experiences of marginalisation, heightened scrutiny and limited institutional belonging. In these contexts, the introduction of AI-supported training and evaluation systems raises the risk that gendered assumptions about performance, leadership, and suitability may be encoded and operationalised through technology.

Despite the relevance of these issues, existing scholarship rarely addresses the intersection of AI, military education, and gender. Literature on AI in PME tends to focus on technological effectiveness and pedagogical innovation, paying little attention to how AI systems may interact with gendered institutional structures. Conversely, research on women in military education has largely overlooked the growing role of AI in training, assessment, and educational governance. This gap persists even as international policy frameworks, most notably NATO's Principles of Responsible Use for AI and the Women, Peace and Security (WPS) agenda, emphasise the importance of fairness, accountability, and gender mainstreaming across defence activities.

Against this backdrop, this article examines the relationship between AI-supported military education and gender equality through a combined analysis of existing literature and empirical observations from Turkish military educational institutions. Türkiye provides a particularly instructive context, as AI-supported education remains limited while gender perspectives and WPS

principles are also largely absent from formal training. This situation allows for an assessment of institutional readiness before large-scale AI adoption occurs.

Accordingly, the study is guided by the following main research question: how does the current absence of both AI-supported educational tools and gender-sensitive frameworks in military education shape institutional readiness for the responsible and gender-equitable integration of artificial intelligence?

By addressing this question, the article seeks to contribute to debates on responsible military AI, gender equality, and educational integrity. It argues that without deliberate efforts to integrate gender perspectives into AI adoption strategies, military education risks reproducing existing inequalities under the guise of technological innovation. Conversely, aligning AI integration with gender-sensitive and WPS-informed approaches offers an opportunity to strengthen both the ethical foundations and operational effectiveness of future military education systems.

Literature Review: AI, Gender and Military Education

1. AI and Gender Bias in Education

Recent analyses show that AI systems often reflect and amplify existing social inequalities, with serious implications for women and girls in educational contexts. Globally, women remain underrepresented in the digital sphere: the latest World Development Report notes that 244 million more men than women use the internet worldwide, while in low-income countries nine out of ten adolescent girls are offline, compared to seven out of ten boys (Barron and Bentil, 2024). This "gender digital divide" extends into AI-mediated learning: educational AI tools, data sets, and curricula developed without women's meaningful participation risk reproducing stereotypes and widening attainment gaps (UNESCO, 2021; UNESCO, 2024).

UNESCO guidance stresses that AI applications in education should be explicitly designed to be 'free from gender bias', using gender-sensitive data

and governance arrangements that actively promote equity rather than assuming that "neutral" data will suffice (UNESCO, 2019, p. 8; UNESCO, 2021, pp. 25, 33). However, empirical work shows that current systems fall short of this goal. A recent UNESCO study of leading generative AI systems (including Llama-2 and GPT-3.5) finds that they frequently produce regressive gender stereotypes: women are described disproportionately in domestic or care-oriented settings, whereas men are associated with technology, leadership, and high-status occupations (UNESCO, 2024). Similarly, a Stanford University reports that a study of large language models systematically portray hypothetical female professionals as younger and less experienced than male counterparts with identical qualifications, reproducing ageism and sexism at once (Reese, 2025; see Guilbeault, Delecourt, and Desikan, 2025).

As O'Neil (2017) argues in *Weapons of Math Destruction*, algorithmic systems often present themselves as objective while in fact amplifying historical inequalities embedded in the data. Educational AI is particularly vulnerable to this dynamic: when models are trained on male-dominated or gender-skewed data, the resulting predictions can systematically disadvantage women and girls. O'Neil's analysis is crucial here because it demonstrates that even well-intentioned AI tools can produce 'mathematically efficient but socially destructive' outcomes, reinforcing the very biases they are assumed to eliminate (2017).

In educational settings, these biases can surface in several ways. Automated grading and feedback systems may penalise linguistic styles, vocabularies or examples more often used by girls and women, or misinterpret assertive language differently when it is associated with female versus male names (National Education Association, n.d.; Eynon, 2023). Predictive analytics tools that flag students as "at risk" are often trained on data sets that under-represent girls, particularly those in low-income or rural contexts, leading to misclassification or invisibility (Baker and Hawn, 2022). AI-driven discipline or plagiarism-detection systems likewise encode the biases present in their training data, which may reflect teachers' and institutions' prior stereotypes

about who are 'disruptive', 'weak in STEM' or 'likely to cheat' (Baker and Hawn, 2022; Idowu *et al.*, 2024).

A growing body of work on algorithmic bias helps to systematise these concerns. Baker and Hawn (2022) provide a detailed review of algorithmic bias in education, identifying nine concrete cases where educational AI systems produced inequitable outcomes for different demographic groups, including gender. They argue that educational AI is still at an early stage of recognising and correcting bias, with many systems deployed before any serious fairness evaluation had taken place. From a broader information-systems perspective, Kordzadeh and Ghasemaghaei (2022) conceptualise algorithmic bias as arising from multiple stages of the AI pipeline, problem formulation, data collection, feature selection, model training, evaluation and deployment, and show how biased systems can erode perceived fairness and trust among users.

These findings intersect with research on women's digital exclusion. Kalim et al. (2025) show that women's restricted access to devices, connectivity, and training leads to under-representation in the data used to build AI-based learning tools, so that predictive models "amplify disadvantage" for female learners rather than simply reflecting a neutral reality. In parallel, it is documented structural barriers to women's adoption of AI in higher education (including cultural norms, time poverty, and lack of institutional support), reinforcing their under-representation in AI-related careers. UNESCO (2021, 2024) notes that women and girls remain under-represented not only as users of AI-driven learning platforms but also as AI developers, data scientists, and decision-makers, contributing to a "gender AI divide" in which biased systems are created and implemented in male-dominated environments.

Taken together, this literature shows that AI in education is not gender-neutral. Instead, it often reproduces inequalities already embedded in societies and educational systems, including the gendered segregation of labour, stereotypes about girls' abilities in STEM, and intersecting biases related to class, race, and age (UNESCO, 2024; Baker and Hawn, 2022; Eynon, 2023).

These patterns are especially concerning in high-stakes contexts such as university admissions, scholarship allocation or certification, where automated decision-making can have life-long consequences. Yet, most of this work is conducted in civilian schooling and higher-education settings. Its implications for more specialised and hierarchical institutions such as military academies remain largely unexplored.

2. AI in Military Education and the Position of Women

2.1 AI in Military Education

Within the military-education literature, AI is predominantly discussed as a tool for enhancing training effectiveness, often without a sustained gender lens. Studies emphasise how AI-enabled simulations, adaptive learning platforms, and data-analytics tools can support more realistic and efficient training. For example, recent analyses suggest that AI-driven systems can tailor content to individual cadet performance, simulate complex combat or crisis scenarios with high fidelity, and assist instructors in identifying knowledge gaps in real time (Gaikwad and Choudhary, 2025; Biggs, 2025). Adaptive algorithms can adjust the difficulty of tasks, modify scenarios in response to trainee actions, and generate personalised feedback, thereby increasing engagement and retention (Biggs, 2025; Putra, 2024).

AI is also increasingly used to automate routine tasks within professional military education (PME). Biggs (2025) notes that tools such as automated essay evaluation, generative content creation (for vignettes, case studies or multiple-choice questions), and summarisation can free instructors' time for higher-order mentoring and discussion. AI-enhanced wargaming and virtual-reality (VR) simulations allow officer candidates to practise tactical decision-making under pressure in a safe environment, exposing them to a wider variety of scenarios than traditional table-top exercises (Cernat, 2022; Biggs, 2025). In this sense, AI contributes to both instructional design (through adaptive curricula and dynamic simulations) and performance evaluation (through fine-grained diagnostics, learning analytics, and personalised recommendations).

Yet, scholars also warn against over-reliance on automation in such high-stakes contexts. Cernat (2022) constructs an idea of AI as a "double-edged sword" in defence education as it increases efficiency and personalisation, but can erode human judgment if cadets and instructors come to trust algorithmic outputs uncritically. Drawing on related debates about military AI and autonomy, excessive dependence on AI-based systems can reduce critical thinking and situational awareness; skills that are crucial in dynamic combat situations. Recent work on AI-supported PME similarly cautions that AI tools must be integrated into pedagogical frameworks that explicitly cultivate human oversight, ethical reasoning, and reflective practice, rather than replacing them (Biggs, 2025).

Importantly, most of this literature focuses on technological and tactical outcomes, such as the accuracy of simulations, the efficiency of grading, or the enhancement of strategic decision-making, without disaggregating effects by trainee demographics. There is little research on whether AI-based training and assessment systems affect different groups of cadets in systematically different ways, whether by gender, race, socio-economic background, or prior educational experience. This is striking given the strong evidence from civilian education that AI systems can reproduce and even exacerbate inequalities (Baker and Hawn, 2022; Kordzadeh and Ghasemaghaei, 2022).

2.2 Women in Military Education: Global and Turkish Contexts

In parallel, a large body of literature documents women's limited participation in the armed forces and in military academies. Globally, women remain a minority in military organisations, even though their numbers have been slowly increasing. UN Women (2025) reports that women constituted around 14% of armed-forces personnel on average in 2022, up from approximately 11% in 2016, with considerable variation across countries and branches. NATO members have, in general, adopted policies to expand women's roles and remove formal barriers; by 2013 all 28 NATO members had some gender-

equality policy in place for their forces, but many still restrict women's access to certain positions or specialisations (Carreiras, 2004; UN Women, 2025).

Military academies mirror these patterns. RAND research on U.S. service academies shows that, while the percentage of women in entering classes increased steadily after 1992, women still constituted a minority, roughly 15-25% of cadets in the early 2000s (Kirby et al., 2010). Graduation and completion rates for women improved over time and became comparable to, or higher than, those of very selective civilian colleges, but issues such as hostile climate, sexual harassment, and limited role models persisted (Kirby et al., 2010). In many other countries, particularly in parts of Asia, Africa, and the Middle East, women's presence in officer-training pipelines remains even lower.

Türkiye offers a telling example of these broader dynamics. Turkish women first entered the military academies in 1955 but were then excluded until 1992, when female cadet intake was re-introduced under strict quotas (Kuloglu, 2005). Initial quotas reportedly set women's admissions at around 10%, yet their overall share among officer-cadets remained very small. By the early 2000s, women accounted for only about 1.6% of all cadets, and in 2003 there were only 1,122 women officers across all Turkish services, roughly half of them in the Army (Kuloglu, 2005). Among Land Forces officers, approximately 305 women (about one-third of the total number of women officers) were graduates of the Turkish Military Academy, which illustrates both the importance of the academy and the scale of the gender gap (Kuloglu, 2005).

Qualitative research further shows that women cadets in Türkiye face cultural and institutional barriers, including gendered expectations around physical training, leadership, discipline, and "appropriateness" in the hyper-masculine military environment (Kuloglu, 2005). Similar issues are reported in other militaries, where women officers are often seen as "strangers" in the institution, lacking the critical mass needed to transform organisational culture (Carreiras, 2004). Studies of peacekeeper training and WPS implementation

highlight how gender modules may be treated as marginal or "add-on" content rather than integral to core military competencies (Holvikivi, 2021).

Feminist military theorists reinforce this point by showing that militaries are not gender-neutral institutions. Enloe (2020) argues that armed forces reproduce gendered hierarchies through everyday routines, disciplinary expectations, leadership norms and assumptions about which bodies are seen as "ideal soldiers". These institutionalised gender norms shape how female cadets are perceived and evaluated. When AI-enabled training or assessment systems are introduced into such environments, they risk encoding and operationalising these gendered expectations unless they are explicitly interrogated. Enloe's framework helps explain why female cadets – already positioned as marginal within many military cultures, may face compounded disadvantage when AI systems are trained on historically male-centric military data.

Despite this substantial literature on women in the military, there is almost no empirical work linking women's experiences in military education to the emerging use of AI in training and assessment. Existing studies on female cadets in Türkiye and elsewhere focus on access, integration, discrimination, and career progression, but not on how AI-based tools may interact with these dynamics (Kuloglu, 2005; Holvikivi, 2021). Conversely, the AI-in-PME literature rarely addresses gender composition, making women largely invisible in discussions of AI-enabled training. This gap becomes particularly significant given the broader evidence that algorithmic systems can encode gender bias and the fact that women are still a small minority in many military training environments.

3. Institutional Frameworks: NATO Responsible AI Principles and the WPS Agenda

International security institutions have begun to articulate high-level principles regarding both AI and gender, but their integration remains partial and often

aspirational. NATO's revised Artificial Intelligence Strategy (2024) reaffirms the Alliance's Principles of Responsible Use (PRUs) for defence AI, stipulating that AI applications must be lawful, accountable, explainable, reliable, governable, and subject to bias mitigation (NATO, 2024a). In principle, the bias-mitigation pillar should cover gender and other social biases; the strategy also calls for developing standards, testing frameworks, and evaluation procedures to ensure that AI systems meet these principles in practice (NATO, 2024a).

In parallel, the Women, Peace, and Security (WPS) agenda has generated a rich policy framework emphasising women's participation in peace and security, protection from gender-based violence, prevention of conflict, and gender-responsive relief and recovery. NATO's 2024 Policy on Women, Peace, and Security explicitly calls for integrating gender perspectives across doctrine, training, readiness evaluation and exercises, and recognises that emerging technologies such as AI have gendered implications (NATO, 2024b). The policy commits the Alliance to 'reduce and remedy gender biases' in the development and use of technologies and to 'operationalise the Principles of Responsible Use' through a gender lens (NATO, 2024b).

UNIDIR research on AI and WPS notes, however, that the integration of these two agendas, responsible AI and gender equality, remains limited. Although numerous states and regional organisations have adopted WPS National Action Plans, only a small subset explicitly mention AI or cyber, and where they do, references are brief and focused on generic risks rather than concrete standards or accountability mechanisms (UNIDIR, 2025). Chandler's (2021) report *Does Military AI Have Gender?* underscores that gender norms can be encoded throughout the machine-learning life cycle; data collection, model training, evaluation, deployment and decommissioning, and that military AI that ignores these dynamics may inadvertently reinforce or exacerbate gender-based harms. It is argued for a gender-based review of military AI systems, including those used for human-resource management, training, and evaluation, not only for weapons or targeting.

Similarly, Holvikivi's (2021) work on "*Training the Troops on Gender"* shows that gender training in peacekeeping contexts has become a transnational practice, yet remains constrained by organisational hierarchies, political compromises, and a tendency to treat gender as a technical add-on rather than a structural issue. When such gender training coexists with rapid digitalisation and AI adoption in military institutions, there is a risk that AI-enabled tools (including educational technologies) will be implemented without being informed by WPS principles, and that gender modules will not address algorithmic bias at all.

In summary, global and regional frameworks have established ambitious normative expectations that AI in defence will be "responsible" and that security institutions will mainstream gender but have not yet provided detailed guidance on how to audit AI-enhanced military education for gender bias, nor how to design AI-enabled curricula and assessment systems that actively support women's participation and success.

4. Critical Synthesis and Literature Gap

The reviewed literature reveals both promising lines of inquiry and notable blind spots. On the one hand, there is broad consensus that AI can enhance military education through personalisation, realistic simulation and efficiency gains (Gaikwad and Choudhary, 2025; Biggs, 2025; Putra, 2024). On the other hand, scholars of AI ethics and algorithmic bias show that such systems can reproduce structural inequalities, including those based on gender, if left unexamined (Baker and Hawn, 2022; Kordzadeh and Ghasemaghaei, 2022; UNESCO, 2024). Crucially, however, very few studies bring these strands together in the specific context of military academies and officer-training programmes.

AI-in-education research demonstrates that bias can emerge in automated grading, student-risk prediction, tutoring and content delivery, and that the magnitude and direction of this bias often differ across demographic groups

(Baker and Hawn, 2022; Idowu *et al.*, 2024). Yet these findings are almost entirely drawn from civilian schools and universities, with little attention to the unique features of military education – its rigid hierarchies, codified discipline, physical standards, notions of leadership, and the strong gendered culture of the armed forces (Carreiras, 2004; Holvikivi, 2021). Conversely, gender-in-military research carefully documents women's marginalisation in officer training and their experiences of discrimination, tokenism, and "strangerhood" within military institutions (Carreiras, 2004; Kuloglu, 2005), but it does not consider how emerging AI tools in training, assessment, or human-resource management might reinforce or mitigate these patterns.

Another tension arises between universal policy and local practice. Global institutions such as UNESCO, UN Women, NATO, and UNIDIR affirm that AI must be fair, inclusive, and aligned with WPS commitments (UNESCO, 2021; UNESCO, 2024; UN Women, 2025; NATO, 2024a; NATO, 2024b; Chandler, 2021; UNIDIR, 2025). However, their guidance often remains high-level, and there is little evidence that military academies systematically audit their AI-based learning platforms, simulations, or evaluation systems for gender bias. Civilian cases show that even when institutions adopt "ethical AI" guidelines, the practical work of implementing audits, diversifying data, revising models, and monitoring outcomes is uneven and contested (Baker and Hawn, 2022; Eynon, 2023). There is no reason to assume that military institutions, with their strong traditions and secrecy, will be less vulnerable to such challenges.

Regional disparities further complicate the picture. In some Western and Nordic militaries, women's representation has increased sufficiently for debates about inclusive training and career progression to gain visibility, and experiments with AI tutors or VR trainers are underway. In contrast, in many countries in the Global South – including Türkiye – women's participation in officer training remains so limited that potential AI-related biases may be masked or simply not recognised (Kuloglu, 2005; UN Women, 2025). This raises the possibility that AI tools are being introduced into contexts where

gender inequality is already pronounced, without any deliberate effort to ensure that they do not further disadvantage women.

In sum, while there is growing awareness of algorithmic bias in education and of gender inequality in the military, the intersection of AI-driven military pedagogy and the experiences of female cadets has been largely overlooked. No systematic body of work addresses questions such as: how do AI-based simulations, tutoring systems, and automated assessments affect women trainees in military academies? Could AI-driven evaluation tools inadvertently reinforce stereotypes about women's physical capabilities, leadership styles, or "suitability" for combat and command? Do NATO's Responsible AI Principles and WPS commitments translate into concrete standards for the design, testing, and deployment of AI in military education?

This unresolved nexus constitutes the core literature gap that the present study addresses. By bringing together insights from AI-in-education research, gender and military sociology, and emerging debates on responsible military AI and WPS, the study aims to examine whether and how AI-enabled training and assessment in military academies may reproduce or challenge gender bias – particularly in the Turkish context, where women's participation in military education remains limited but is symbolically significant for broader gender-equality goals.

Findings: AI and Gender Practices in Turkish Military Educational Institutions

This study employed a qualitative, two-pronged research design combining a conceptual framework analysis with empirical field observations. First, we developed a conceptual understanding of gender equality issues in AI-enabled military education through an extensive literature review. This critical review of academic studies, policy documents, and best-practice guidelines provided the theoretical framework and key themes – such as algorithmic bias, representation of women, and the Women, Peace and Security (WPS) agenda

– that informed our empirical inquiry. Building on these insights, we identified specific questions and criteria (e.g. presence of gender bias mitigation measures, inclusion of women in curricula or AI datasets) to examine during field research.

The second part of our methodology consisted of direct field observations and semi-structured interviews at three major Turkish military educational institutions. Between late 2024 and mid-2025, the authors conducted official site visits to Türkiye's National Defence University (NDU) in Ankara, the NATO Centre of Excellence for Defence Against Terrorism (COE-DAT) in Ankara, and the Turkish Gendarmerie and Coast Guard Academy in Ankara. Each visit was carried out with the institutions' permission and followed a consistent protocol. The researchers toured facilities and classrooms, observed training sessions (when available), and reviewed any accessible training materials or curricula. In addition to observation, we held semi-structured interviews primarily with each institution's education coordinators, as well as select faculty, and staff members. These interviews lasted roughly 30-60 minutes each and followed an interview guide focused on the use of AI in teaching, any ongoing gender-related initiatives or training content, and perceptions of NATO's Responsible AI principles in the educational context. The semi-structured format allowed us to ask predefined questions while also probing new topics that emerged during conversations. All interviews were conducted in person during the site visits, in Turkish, and we took detailed notes (no audio recordings were made, per the institutions' preferences). Before each visit, the researchers obtained informed consent from interviewees and assured them of anonymity in reporting findings. No sensitive or classified information was sought or recorded. We focused only on openly available educational practices and policies. Because the study deals with institutional practices, the emphasis was on organisational observations rather than personal data.

We distinguish clearly between observational findings and information from public sources in our analysis. Institutional background details (such as each academy's history, official mission, and organisational structure) were gathered

from official publications and websites (and are cited accordingly in the text). In contrast, our evaluation of current practices – for example, whether AI tools are being used in classrooms or how gender topics are handled on campus – is based on our direct observations and interview responses during the site visits. After the fieldwork, we compiled and coded our observation and interview notes to identify common themes. The limitations of the study are also acknowledged – the findings are qualitative and based on a limited sample of institutions within Türkiye, so they may not be generalisable to all military education settings. However, the chosen institutions are among the most prominent in the Turkish context.

National Defence University (Milli Savunma Üniversitesi)

Institutional Profile: The National Defence University (NDU) of Türkiye was established in July 2016 as a reorganisation of the country's military academies and colleges. Following a major military reform, NDU brought under one umbrella the service academies (*Army, Navy, Air Force academies*), the War Colleges (*staff officer schools*), and other military higher education institutes. NDU is headquartered in Istanbul with campuses and constituent schools in several cities, including Ankara. Its mandate is to provide undergraduate and graduate education for cadets and officers, as well as professional military education for mid-career and senior officers. In essence, NDU is the backbone of Türkiye's military education system, akin to a national defence university structure found in many NATO countries. The university is under the Ministry of National Defence and is responsible for commissioning new officers and advancing the education of serving officers in joint staff programmes. Given Türkiye's strategic orientation, NDU's doctrine and curriculum are expected to align with NATO standards to a degree, while also reflecting national policies.

AI-Supported Education Practices: Based on the site visit, AI technology had only minimal presence in NDU's educational activities as of early 2025. Traditional teaching methods (e.g. lectures, seminars, field exercises) still

dominate. The team did not observe any dedicated AI-based learning platforms in use for cadet or officer training. For example, there were no AI-driven tutoring systems or adaptive learning software visible in classrooms or mentioned by instructors. Simulators and computer-based training exist (e.g., war-gaming software, flight simulators for cadets), but these are largely earlier-generation systems not imbued with machine learning or modern AI capabilities. An NDU staff member at the War College library indicated they were aware of emerging tools like intelligent tutoring systems and even large language models that could potentially assist with language training or strategic scenario planning, but these remained aspirational. No formal pilot projects involving AI in the curriculum could be identified during the visit. This aligns with broader findings that the Turkish Armed Forces have been slow to integrate AI into training, focusing more on operational capabilities. A recent independent study on defence AI in Türkiye noted that while the military is experimenting with AI in areas like autonomous systems and decision support, there are not any 'open resource on how...defence AI-specific training in the military' is being implemented yet. The core problem, that study suggested, is a lack of concepts and doctrine for human-machine teaming in training, an observation clearly reflected at NDU (Kurç, 2023, p. 34). NDU's faculty have not received broad training in AI literacy, and there is no institutional directive (so far) pushing AI integration into classrooms. In effect, NDU is lagging in the adoption of the very AI tools that NATO and national strategies predict will shape the future of professional military education.

One minor exception is in research: NDU's think-tank wing (Strategic Research Institute) has begun to study AI implications for defence, and a few elective thesis projects by officers were examining AI (e.g. such as drone swarming algorithms). However, these remain academic studies, not implementations in teaching practice. The absence of AI-supported education at NDU means that, on the positive side, there is not yet a risk of AI-induced bias in the learning process – but on the negative side, Turkish military students are not gaining exposure to cutting-edge tools that allies are increasingly using, potentially putting them at a developmental disadvantage.

Moreover, it raises the question of preparedness: when AI tools inevitably arrive, will faculty and curricula be ready to ensure their responsible, bias-aware use?

Gender Sensitivity in Curriculum and Environment: The site visit similarly found little to no systematic integration of gender perspectives or WPS principles in NDU's educational content. There is no mandatory course or module on Women, Peace, and Security for cadets or officers. Core curriculum in strategy, international security, leadership, etc., did not explicitly address gender topics. For instance, a review of recent course syllabi for a joint operations course and an international relations course showed no sessions on gender analysis or case studies highlighting female military leaders. The overwhelming majority of historical and contemporary examples discussed in class materials featured male figures, reflecting a traditional canon. This is not surprising given that Türkiye, unlike some NATO members, does not yet have a publicly active National Action Plan for UNSCR 1325, and its military institutions have not emphasised gender training domestically.[1] While NDU does enroll female students – women have been admitted to the Turkish service academies in various capacities since the 1990s – their numbers remain relatively low, and there was no evidence of tailored support or curricular content addressing their unique experiences. In informal conversation, a female cadet noted that topics like leadership or ethics were taught in a "gender-neutral" fashion, which in practice meant assuming a male-centric viewpoint. This anecdotal insight resonates with Holvikivi's (2021) critique that many military trainings treat gender as an external concern and do not challenge internal culture.

Institutionally, NDU does not appear to have a Gender Advisor or an equivalent position that some NATO commands have introduced. Nor has it yet incorporated NATO's guidance that gender perspectives be mainstreamed

[1] United Nations Security Council. (2000) *Resolution 1325 on Women, Peace and Security*. S/RES/1325. United Nations.

in all education and training. The absence of gender sensitivity was also evident in student life: displays of alumni portraits, for example, were nearly all male; discussions of leadership in the curriculum did not mention concepts like inclusive leadership or dealing with mixed-gender units. The implication is that graduates may leave NDU with little awareness of WPS or how gender dynamics can impact military operations – a gap between Türkiye's PME and NATO's evolving emphasis on these issues. It's worth noting that Türkiye's armed forces have made some progress on gender integration (women serve in the officer corps in non-combat roles, and the first female fighter pilot was celebrated decades ago), but these advancements are not explicitly reinforced or analysed in NDU's educational programmes. In summary, NDU currently exemplifies a traditional approach: focusing on technical and tactical training without the overlay of AI innovation or gender perspective. The challenge ahead will be bringing this cornerstone institution in line with more forward-leaning practices of allies regarding AI and WPS.

NATO Centre of Excellence for Defence Against Terrorism (COE-DAT)

Institutional Profile: COE-DAT in Ankara is a NATO-accredited Centre of Excellence established in 2005 with the mission to provide expertise, training, and research in counterterrorism for NATO member and partner nations. It operates under the sponsorship of multiple NATO countries (led by Türkiye) and is part of the wider network of NATO Centres of Excellence that inform doctrine and training. COE-DAT's activities include courses, workshops, and seminars on topics such as terrorism trends, counter-insurgency, and countering terrorist use of technology. By 2023, COE-DAT had conducted courses with around 13,000 participants from over 100 countries, highlighting its extensive reach. The centre's faculty is a mix of Turkish and international experts, and it publishes research (e.g., the Defence Against Terrorism Review journal and project reports). Given COE-DAT's NATO orientation, one might expect it to be relatively attuned to NATO's latest priorities, including those on emerging technology and human security (which includes WPS).

AI-Supported Education Practices: The integration of AI into COE-DAT's training offerings was found to be minimal and mostly confined to being a topic of discussion rather than a tool employed in instruction. None of the courses observed or described utilised AI-driven educational software. COE-DAT primarily relies on expert lectures, case study discussions, and tabletop exercises. The site visit coincided with a training course on "*Terrorism in the Digital Age*", which did include lectures on AI and terrorism (e.g, how terrorist groups might abuse AI for propaganda or how AI-driven analytics can aid counterterrorism). However, these were conventional lectures *about* AI, not using AI. The educators did not employ any AI-based simulations or adaptive learning platforms in delivering the course. COE-DAT's research projects indicate awareness of AI's importance: notably, a 2025 research project book titled *"The Weaponization of Artificial Intelligence: The Next Stage of Terrorism and Warfare"* was listed among its publications. This suggests the centre is producing conceptual knowledge on AI in conflict. Yet, when it comes to applying AI for their *own educational methods*, that leap has not been made. Course content is still instructor-driven and power-point heavy.

One potential area for AI application could be in COE-DAT's simulations of terrorist incidents or decision-making exercises. As of the visit, these were run using predefined scripts and facilitator inputs, not AI-generated scenarios. The staff did express interest in exploring more interactive learning, for instance, using a machine-learning based wargame to simulate terrorist and counter-terrorist moves but such ideas were in exploratory phases and constrained by budget and expertise. In effect, COE-DAT's practice lags behind NATO's vision of harnessing AI for training. NATO's Autonomy Implementation Plan envisions the alliance 'regularly conduct[ing] exercises and experimentation with cutting-edge autonomy-enabled solutions', but COE-DAT's exercises have yet to feature autonomy or AI as part of the training method (NATO, 2022). The centre thus stands at a crossroads: it is deeply involved in the *content* of AI in security (as a subject matter), but not yet integrating AI into the *process* of educating its students. The near absence of AI tools in its courses means

that the responsible use principles NATO advocates remain theoretical here – COE-DAT has not had to implement bias mitigation or data governance for AI educational tools since they are not in use.

Gender Sensitivity in Curriculum and Environment: As a NATO COE, one might assume COE-DAT would incorporate NATO's cross-cutting themes like WPS, but the site visit found that gender perspectives were essentially absent from COE-DAT's standard curriculum and institutional practices. The courses are very much focused on functional expertise (e.g. Critical Infrastructure Protection or Countering Terrorist Financing), with little to no mention of gender issues within these topics. A review of recent agendas and course descriptions did not reveal any session dedicated to, for example, the role of women in counterterrorism or gender and radicalisation. Furthermore, training scenarios and case studies presented in courses tended to use generic terms like "the commander" or "the perpetrator" – almost always implicitly male, though not stated, and no scenario explicitly involved female combatants or leaders. This underscores a common issue: if gender is not raised, the default assumptions often skew male.

COE-DAT does have in its research portfolio one notable project: a report on *"Gender-Disaggregated Data: Regional Analyses of Criminal Justice Outcomes in Terrorism Prosecutions"* (Hodwitz, Knoll-Frey, and Koller, 2022). This indicates an analytical interest in how men and women might be treated or affected differently in counterterrorism efforts. However, this research focus did not translate into observable training content. There was no evidence during the visit that findings from that report (i.e. if women are prosecuted or radicalised differently) were being taught to course participants. Additionally, COE-DAT's faculty composition and student demographics appear to mirror the general military imbalance – an overwhelmingly male instructor cadre, and a majority of male participants (though a handful of female officers from various countries were present in the course observed). There were no female senior leaders on staff at the time of the visit who could serve as internal advocates for WPS integration. And unlike some NATO Commands, COE-DAT does

not have a designated Gender Advisor role; the concept may be seen as outside its immediate counterterrorism mandate.

The result is that gender sensitivity is not part of COE-DAT's institutional culture or pedagogy. This is a gap, considering NATO's expectation that even specialist centres incorporate Alliance values, including WPS. The silence on gender means opportunities are missed: for example, discussing how terrorist groups exploit gender norms (e.g. Boko Haram's use of female suicide bombers) or how involving women in community counter-extremism programmes can be beneficial, topics well-documented in counterterrorism literature. These aspects were not covered, reflecting perhaps an outdated view that gender belongs to human security or civil affairs, not "hard" security training. The irony is that COE-DAT as a NATO COE should be at the forefront of comprehensive approaches. Its readiness to align with NATO's WPS strategy is low at present; staff would likely need sensitisation training themselves to start incorporating these insights. In fairness, participants coming from NATO countries into COE-DAT courses might bring up gender issues during discussions, but this is ad-hoc and not built into the programme design. Thus, COE-DAT presents a case where progressive policy from NATO Headquarters has not filtered down to practical training on the ground in any systematic way.

Turkish Gendarmerie and Coast Guard Command (Jandarma ve Sahil Güvenlik Akademisi)

Institutional Profile: Gendarmerie and Coast Guard Academy, founded in 1839, is a higher education institution affiliated to the Ministry of Interior that trains the officers and non-commissioned officers required by the Gendarmerie and Coast Guard Command. All officers and non-commissioned officers of the Gendarmerie and Coast Guard Command are trained in this institution. The technical classes of the Coast Guard Command are trained at the Coast Guard Academy.

AI-Supported Education Practices: During the visit to the Gendarmerie and Coast Guard Academy's training facilities and academy, it was evident that AI has not yet made inroads into the Coast Guard's training programmes. We found its situation similar to the others: there is almost no artificial intelligence in the training and no WPS integration. The curriculum emphasised traditional subjects (e.g. gendarmerie issues, legal issues concerning the gendarmerie, crime research, crime scene investigation, basic military subjects, navigation, security) taught through lectures, manuals, and standard simulators. There were basic and advanced armed shooting simulation systems, exemplary city applications performing gendarmerie duties, but they ran pre-programmed scenarios without machine learning. No AI instruction or adaptive systems were observed. Instructors stated that they used advanced technologies (e.g. drones for surveillance) but these were for operations, not training. Like the NDU, the Gendarmerie and Coast Guard's materials (training manuals, slides) were static and centrally approved; AI generated content was not used. Trainers have not explored tools such as AI-based translators for training (useful for international rescue missions) or predictive analytics. There are no internal AI policies or ethical guidelines for training because AI is not yet on the radar. One officer at the Academy did mention that the Coast Guard has access to e-learning modules through the Gendarmerie's system and that there is interest in possibly leveraging more e-learning for continuous education, but AI personalisation was not a concept they were familiar with. Overall, it remains an "analogue" training system, far from NATO's goal of using big data and AI in all services. This means that there are no AI bias issues today, as in the NDU, but also no educational advantages that AI promises for tomorrow.

Gender Sensitivity in Curriculum and Environment: Gender considerations in the Gendarmerie and Coast Guard Academy were similarly neglected. Unlike the armed forces, the Gendarmerie and Coast Guard (a law-enforcement branch*)* has received little WPS focus. We saw no training modules on gender topics (i.e. handling women and children in migrant boats, or gender-based crime), even though these are relevant to Gendarmerie

missions. Instructors reported never having received WPS training, and none of their materials mentioned UNSCR 1325 or the Istanbul Convention. There are female Gendarmerie and Coast Guard officers, but not meaningful in number; we observed only a few female cadets among a largely male student body. No accommodations or discussions address gender-specific challenges (i.e. mixed-gender team dynamics, harassment prevention) in training. The service's culture remains male-dominated: although the majority of commanders and managers are male, there are very limited numbers of female managers and commanders, and there are no senior female role models shaping policy or training. This top-heavy gender imbalance likely contributes to the issue being unseen in the curriculum. Because Türkiye has no domestic WPS mandate for internal security forces, the Gendarmerie and Coast Guard feels little external pressure. It does have formal non-discrimination policies (women may serve, anti-discrimination rules exist), but these are legalistic and not woven into education. In short, the Gendarmerie and Coast Guard Academy exemplifies a blank slate: it has neither introduced the potentially biased AI tools (so is safe from their downsides) nor applied any of the inclusive practices that NATO's WPS agenda encourages. As the service modernises in the future, this dual gap – low tech and low gender awareness – could become a liability.

Discussion: Bridging Policy and Practice – Readiness for NATO AI and WPS Alignment

The combined insights from the literature review and the field observations conducted in Turkish military educational institutions reveal a pronounced gap between policy-level commitments and institutional practice regarding both artificial intelligence and gender equality. This gap operates simultaneously on two interrelated levels. On the one hand, there is a technological lag, as AI-supported educational tools remain largely absent from curricula and training environments. On the other hand, there is an organisational and cultural lag, reflected in the near-complete absence of gender perspectives and Women,

Peace and Security (WPS) principles in educational content and institutional practices. Together, these gaps indicate a limited level of readiness to operationalise NATO's Responsible AI Principles and WPS commitments within military education.

From the perspective of AI adoption versus responsible use, NATO's strategic discourse emphasises not merely the uptake of AI technologies but their ethical, transparent, and accountable integration into defence activities. In the Turkish institutions examined, however, the immediate challenge is not the misuse of AI but its near-total absence from educational practice. While this means that AI-driven gender bias is not currently being reproduced within classrooms, it also signals a missed opportunity to prepare officers for a security environment in which AI-supported decision-making is increasingly central. The literature on professional military education stresses that familiarity with AI-enabled tools is becoming a core competency for future military leaders. In this sense, the absence of AI-supported education risks creating an interoperability and preparedness gap between Turkish officers and their counterparts in NATO countries where experimental uses of AI in training and simulation are already underway. More critically, the lack of gradual exposure to AI increases the likelihood that, when AI tools are eventually introduced under pressure to modernise, they may be adopted rapidly and without adequate attention to bias mitigation, ethical safeguards, or institutional learning.

Equally striking is the persistence of gender-blind educational environments in contrast to NATO's explicit WPS objectives. Across all three institutions studied, gender perspectives were either marginal or entirely absent from curricula, training scenarios, and institutional culture. This stands in clear tension with NATO's framing of gender mainstreaming as integral to operational effectiveness rather than an optional add-on. While national context and the limited domestic prioritisation of WPS in Türkiye partly explain this gap, the absence of gender-sensitive education within a NATO member state and a NATO-accredited Centre of Excellence underscores a broader problem of policy diffusion. International norms and commitments

have not been internalised at the level of everyday teaching and learning. As a result, institutional readiness to align with NATO's WPS agenda remains low, not because of overt resistance, but because gender has not been framed as relevant to "core" military knowledge and competence.

The most consequential finding emerges at the intersection of these two gaps. The absence of both AI-supported education and gender-sensitive frameworks creates a compounded risk for future integration. Introducing AI into an institution that has not already internalised gender awareness raises the likelihood that gender-blind assumptions will be encoded into technological systems by default. An organisation that does not question whose experiences are represented in its curricula is unlikely to question whose data informs an AI-generated output. The literature on algorithmic bias illustrates how such omissions can quietly reinforce stereotypes and exclusions. Conversely, institutions that have already embraced inclusive values are better positioned to deploy AI as a corrective tool, for example by using automated analysis to audit curricula for representation or bias. The Turkish institutions examined here are currently positioned to do neither, lacking both the technological tools and the institutional mindset required for such reflexive use of AI.

These findings also draw attention to the role of organisational will and policy implementation. Across the institutions visited, there was no evidence of internal mandates, leadership-driven initiatives, or designated champions for either AI in education or gender mainstreaming. This suggests that meaningful change is unlikely to emerge organically without clearer policy signals and incentives. While NATO's influence on national military education systems is indirect, its Responsible AI Principles and WPS policies provide a strong normative basis for domestic reforms. Practical steps such as integrating AI ethics, including gender bias, into professional military education curricula, or making WPS briefings a standard component of staff training would represent initial but significant shifts. Without such top-down guidance and resource allocation, institutional inertia is likely to persist.

Finally, the implications of these gaps extend beyond compliance with NATO policies to questions of institutional integrity and effectiveness. Military education that remains disconnected from both technological innovation and gender awareness risks preparing officers for a security environment that no longer exists. Ignoring gender dynamics limits the ability of future leaders to operate effectively in diverse operational contexts, while avoiding engagement with AI delays the development of critical ethical and analytical skills needed in coalition environments. At the same time, the evidence suggests that these challenges are not insurmountable. Türkiye's military education system has adapted to NATO standards in other domains, and institutions such as NATO's Centre of Excellence offer potential platforms for piloting integrated approaches to AI and WPS. Bridging the gap between policy and practice therefore requires recognising that technological modernisation and gender equality are not competing agendas but mutually reinforcing dimensions of responsible and effective military education.

Recommendations

Bridging the identified gaps will require a multi-pronged approach. A few recommendations emerge from this analysis:

Strategic Planning for AI in Education: The Turkish MoD and relevant authorities should develop a roadmap for introducing AI-based learning tools in military education. This should include pilot programmes at NDU or war colleges (i.e. testing an AI tutor in an English language course or an AI-assisted scenario generator in a tactics class). Crucially, these pilots should be accompanied by rigorous bias evaluations, perhaps in collaboration with universities or industry, to ensure outputs are fair and align with ethical principles. Early successes can then be scaled up across institutions.

Capacity Building and Training: Faculty development programmes are needed so that instructors are comfortable with AI tools and aware of issues like algorithmic bias. NATO and partner nations could support workshops for Turkish military educators on AI in pedagogy and on WPS integration. This could involve exchange visits or mobile training teams. Enlightening the

educators is a force multiplier: if they grasp the importance, they will carry it into their courses. As Biggs (2025) suggests, educating the educators on AI's benefits and pitfalls is as important as the tech itself.

Curriculum Reform for WPS: NDU and other academies should revise curricula to embed gender perspectives. This does not necessarily mean adding whole new courses (which can meet resistance and resource issues); it can be done by tweaking existing courses to include case studies or discussions about gender. For instance, a lesson on asymmetric warfare could include how engaging local women helped or hindered a campaign. The key is normalisation of the topic. It would also help to measure progress e.g., count how many lectures or exercises incorporate gender analysis each year as a metric, similar to how many incorporate cyber or other cross-cutting topics.

Leadership and Policy Signals: The leadership of these institutions should make visible commitments. A statement from the NDU Rector or COE-DAT Director acknowledging NATO's Responsible AI principles and WPS mandate, and committing the institution to progress, would send a strong message to faculty and students. Backing that with small internal policy changes (i.e. requiring diverse panels in exercises, or reviewing new training software for bias) can gradually shift the institutional culture toward one of anticipating bias and valuing inclusion.

Leverage Research and Young Talent: Encourage students (*cadets and officers*) to engage with these topics in their thesis or research projects. The Turkish officers who wrote on AI and those who studied gender-disaggregated data at COE-DAT show there is interest. NDU could offer incentives or recognition for top research on AI ethics or WPS in military operations. This not only builds a body of local knowledge but also creates a cadre of junior leaders conversant in these issues who can champion them over their careers.

By implementing such measures, Turkish military educational institutions could significantly improve their alignment with both NATO's technological and human security trajectories. Over time, one would hope to see AI-

supported learning that actively avoids bias and curricula that produce officers able to lead diverse forces in a complex information environment. The integration of gender equality considerations into AI adoption is, as our title suggests, a frontier of integrity – it tests whether institutions will uphold their professed values when faced with disruptive change. The evidence from the literature and site visits shows the path is challenging but navigable with commitment and enlightened leadership.

Conclusion

The foregoing analysis has traversed the landscape of gender equality in AI-supported military education, juxtaposing aspirational norms and research-based recommendations with the reality observed in select Turkish military institutions. The contrast is striking: while scholarly and policy discourse globally insists on "responsible AI" and inclusive pedagogy that leaves no one behind, the current practices at a major defence university, a NATO Centre of Excellence, and a security academy reveal considerable lags in both technological uptake and gender awareness. AI's promised benefits for military learning, personalisation, enhanced simulation, data-driven insights, remain untapped in these institutions, meaning their students are not yet experiencing the frontier of educational innovation. Concurrently, the absence of gender-sensitive content means these institutions also risk perpetuating a narrow perspective at odds with the diverse, complex realities of modern security environments.

One of the key findings of this paper is that these gaps are mutually reinforcing. An organisation that has not internalised principles of gender equality is less likely to implement AI in a thoughtful, bias-conscious manner; conversely, an organisation not experimenting with AI is missing chances to identify and correct biases in its own processes. Achieving progress will therefore require a holistic approach that addresses both dimensions in parallel. For NATO and national stakeholders, the case of Türkiye's military education system can serve as both a caution and a call to action. It cautions that high-level principles (e.g. NATO's AI and WPS policies) do not

automatically translate into practice – they require dissemination, local buy-in, resources, and often external nudges or support. It calls to action by showing that as generative AI and other technologies inevitably enter military classrooms, there is an opportunity now to shape their integration in line with gender-inclusive values, rather than retrofit ethics after problems occur.

This paper's examination of both literature and empirical evidence underscores that integrity will be tested in new ways by AI from whether an algorithm treats all students fairly to whether a dataset omits voices of one gender. Maintaining integrity thus demands proactive measures: vetting algorithms for bias, involving women in tech development, educating officers to recognise and challenge AI-driven skew, and consciously incorporating the gender perspective in all training scenarios. These are not mere ideals; they are practical steps recommended by experts and, as our study suggests, urgently needed on the ground.

In closing, the integration of gender equality considerations into AI-supported military education should be viewed not as a secondary or niche issue, but as a fundamental component of military effectiveness and ethical conduct in the 21st century. Just as armed forces would not deploy a new weapon system without rigorous testing and rules of engagement, we should not deploy powerful AI educational tools without ensuring they conform to our ethical standards and do not inadvertently disadvantage any group of students. Likewise, just as modern military operations recognise the importance of engaging the whole population (men and women) for success, so too must military education engage with the perspectives of all who serve. The experiences of NDU, COE-DAT, and Gendarmerie and the Coast Guard Academy in Türkiye reveal that there is much work to be done to reach these goals. Yet, the fact that these conversations are happening – at conferences, in research centres, and gradually within institutions – is a positive sign. It means the seeds of change have been planted.

Ultimately, the integrity of military education in the age of AI will be judged by whether it can evolve to harness new technologies while upholding and furthering the values of equity and inclusivity that our societies cherish. For nations like Türkiye and for the NATO alliance collectively, success in this endeavor will produce not only more technologically adept officers but also more enlightened, culturally competent, and ethically grounded leaders. Such leaders will be better equipped to face the multifaceted challenges of contemporary security, from hybrid warfare to humanitarian crises, where understanding gender dynamics and leveraging AI capabilities can together make the difference between mission success and failure. The frontier ahead is demanding, but with commitment to both innovation and equality, it is one that military education can and must conquer – ensuring that the frontiers of integrity expand hand-in-hand with the frontiers of technology.

AI Statement:

Bibliography

Baker, R.S. and Hawn, A. (2022) 'Algorithmic Bias in Education', *International Journal of Artificial Intelligence in Education*, 32(4), pp. 1052-1092.

Barron, M. and Bentil, E. (2024) 'Bridging the AI Divide: Breaking Down Barriers to Ensure Women's Leadership and Participation in the Fifth Industrial Revolution', [online] *World Bank Blogs*, 25 April. Available at: https://blogs.worldbank.org.

Biggs, A.T. (2025) 'Enhancing Professional Military Education with AI: Best Practices for Effective Implementation', *Journal of Military Learning*, 19(1), pp. 22-35.

Carreiras, H. (2004) *Gender and the Military: A Comparative Study on the Participation of Women in the Armed Forces of Western Democracies*. Doctoral dissertation. Florence, Italy: European University Institute.

Cernat, R. (2022) 'Lethal Autonomous Weapon Systems – Emerging and Potentially Disruptive Technology', in *Romanian Military Thinking International Scientific Conference Proceedings*. Bucharest, Romania: Centrul tehnic-editorial al armatei, pp. 156-175. Available at: https://en-gmr.mapn.ro/webroot/fileslib/upload/files/arhiva%20reviste/RMT/2022/conference%202022/RMT_CONF_2022.pdf.

Chandler, K. (2021) *Does Military AI have Gender? Understanding Bias and Promoting Ethical Approaches in Military Applications of AI*. Geneva, Switzerland: UNIDIR. Available at: https://unidir.org/wp-content/uploads/2023/05/UNIDIR_Does_Military_AI_Have_Gender.pdf.

Enloe, C. (2020) *The Big Push: Exposing and Challenging the Persistence of Patriarchy*. Oakland, California: University of California Press.

Eynon, R. (2023) 'Algorithmic Bias, Education and Data Justice', in *OECD digital education outlook 2023*. Paris, France: OECD Publishing.

Gaikwad, M.R.R. and Choudhary, A.S. (2025) 'Integrating Artificial Intelligence into Military Education: Opportunities, Challenges, and Future Directions', *Journal of East-West Thought (JET)*, 15(1), pp. 1317–1330. doi: 10.7492/bgfnbb75.

Guilbeault, D., Delecourt, S. and Desikan, B.S. (2025) 'Age and Gender Distortion in Online Media and Large Language Models', *Nature*, 646, pp. 1129-1137. https://doi.org/10.1038/s41586-025-09581-z.

Hodwitz, O., Knoll-Frey, K. and Koller, S. (2022) *Gender-Disaggregated Data: Regional Analyses of Criminal Justice Outcomes in Terrorism Prosecutions*. Available at: https://www.tmmm.tsk.tr/publication/researches/16-GenderDisaggregatedData.pdf.

Holvikivi, A. (2021) 'Training the Troops on Gender: The Making of a Transnational Practice', *International Peacekeeping*, 28(2), pp. 175-199.

Idowu, J.A., Koshiyama, A.S. and Treleaven, P. (2024) 'Investigating algorithmic bias in student progress monitoring', *Computers and Education: Artificial Intelligence*, 7, 100267. doi: 10.1016/j.caeai.2024.100267.

Kalim, U., Kanwar, A., Sha, J., and Huang, R. (2025) 'Barriers to AI adoption for Women in Higher Education: A Systematic Review of the Asian Context', *Smart Learning Environments*, 12, Article 38.

Kirby, S.N., Thie, H.J., Naftel, S. and Adelson, M. (2010) *Diversity and the Success of Entering Classes at the U.S. Service Academies*. Santa Monica, California: RAND Corporation. Available at: https://www.rand.org/pubs/research_briefs/RB9496.html.

Kordzadeh, N. and Ghasemaghaei, M. (2022) 'Algorithmic Bias: Review, Synthesis, and Future Research Directions', *European Journal of Information Systems*, 31(3), pp. 388-409.

Kuloglu, C. (2005) *The Military in Turkey from a Gender Perspective*. Unpublished Master's Thesis. Ankara, Türkiye: Middle East Technical University.

Kurç, Ç. (2023) *Enabling Technology of Future warfare: Defense AI in Turkey*. Available at: https://defenseai.eu/wp-content/uploads/2023/01/DAIO_Study2308.pdf.

NATO (2022) *Summary of NATO's Autonomy Implementation Plan*. Available at: https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2022/10/13/summary-of-natos-autonomy-implementation-plan.

NATO (2024a) *Summary of NATO's Revised Artificial Intelligence (AI) Strategy*. Available at: https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2024/07/10/summary-of-natos-revised-artificial-intelligence-ai-strategy.

NATO (2024b) *NATO Policy on Women, Peace, and Security*. Available at: https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2024/07/10/nato-policy-on-women-peace-and-security-2024.

National Education Association (n.d.) 'Does AI have a Bias Problem?', *NEA Today*. Available at: https://www.nea.org/nea-today/all-news-articles/does-ai-have-bias-problem

O'Neil, C. (2017) *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York, New York: Crown Publishers.

Putra, H. (2024) 'The Impact of Artificial Intelligence on the Learning Motivation of Military Students', *Nurture*, 2(1), pp. 1-15.

Reese, H. (2025) 'Researchers Uncover AI Bias Against Older Working Women', *Stanford News*, 17 October. Available at: https://news.stanford.edu/stories/2025/10/ai-llms-age-bias-older-working-women-research.

UNESCO (2019) *Beijing Consensus on Artificial Intelligence and Education*. Paris, France: UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000368303.

UNESCO (2021) *AI and Education: Guidance for Policy-Makers*. Paris, France: UNESCO. Available at: https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers.

UNESCO (2024) 'Generative AI: UNESCO Study Reveals Evidence of Bias', Press release. Available at: https://www.unesco.org/en/articles/generative-ai-unesco-study-reveals-alarming-evidence-regressive-gender-stereotypes.

UN Security Council. (2000) *Resolution 1325 on Women, Peace and Security*. S/RES/1325. Available at: UN Security Council resolution 1325 on women and peace and security (2000) | UN Women – Headquarters.

UN Women (2025) *Facts and Figures: Women, Peace and Security*. Available at: https://www.unwomen.org/en/articles/facts-and-figures/facts-and-figures-women-peace-and-security.

UNIDIR (2025) *Artificial Intelligence and the Women, Peace and Security Agenda*. Policy brief. Geneva, Switzerland: UNIDIR. Available at: https://unidir.org/wp-content/uploads/2025/09/UNIDIR_Artificial-Intelligence-and-the-Women-Peace-and-Security-Agenda.pdf.