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# Differences in Male and Female Responses to Artificial Intelligence Integration for Education Faculty: Study of Thailand International Students at Islamic Universities in Indonesia

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**Abstract:** This study aims to investigate the different views and responses of male and female Thai students regarding the advancement of artificial intelligence (AI) technology in the context of teacher training study programs in Islamic universities in Indonesia. Through a qualitative approach with a case study design, the study collected data through interviews, document studies, observations, and surveys. Data validity is guaranteed through triangulation and analysis using Miles and Huberman models. Involving Thai students at UIN Walisongo Semarang, this study found significant differences in responses to AI between genders. Women tend to support the use of existing AI for learning, while men are more interested in developing new technologies to overcome challenges. This difference is reflected in their views on the role of AI in improving access and quality of education as well as in concern for data privacy and security. In addition, the study highlights differences in engagement rates between genders, with women more open to the effective use of AI in learning, while men are more active in the development of AI technologies for education. These findings illustrate the influence of cultural, social, and psychological factors in the adoption and development of AI. This research contributes to finding the characteristics of men and women in responding to AI in Islamic higher education, and this plays a role in determining policies so that AI development can be utilized optimally by international students.

**Keywords:** male, female, artificial intelligence, teacher training study program, international student, Thailand, Islamic college, Indonesia.

**Abstrak:** Penelitian ini bertujuan untuk mengetahui perbedaan pandangan dan tanggapan mahasiswa Thailand laki-laki dan perempuan terhadap kemajuan teknologi kecerdasan buatan (AI) dalam konteks program studi keguruan di universitas-universitas Islam di Indonesia. Melalui pendekatan kualitatif dengan desain studi kasus, penelitian ini mengumpulkan data melalui wawancara, studi dokumen, observasi, dan survei. Keabsahan data dijamin melalui triangulasi, dan analisis menggunakan model Miles dan Huberman. Dengan melibatkan mahasiswa asal Thailand di UIN Walisongo Semarang, penelitian ini menemukan perbedaan signifikan respon terhadap AI antar gender. Perempuan cenderung mendukung penggunaan AI yang ada untuk pembelajaran, sementara laki-laki lebih tertarik mengembangkan teknologi baru untuk mengatasi tantangan. Perbedaan ini tercermin dalam pandangan mereka mengenai peran AI dalam meningkatkan akses dan kualitas pendidikan serta kepedulian terhadap privasi dan keamanan data. Selain itu, penelitian ini menyoroti perbedaan tingkat keterlibatan antar gender, dimana perempuan lebih terbuka terhadap penggunaan AI secara efektif dalam pembelajaran, sementara laki-laki lebih aktif dalam pengembangan teknologi AI untuk pendidikan. Temuan ini menggambarkan pengaruh faktor budaya, sosial, dan psikologis dalam adopsi dan pengembangan AI. Penelitian ini berkontribusi untuk menemukan karakteristik laki-laki dan perempuan dalam menyikapi AI di perguruan tinggi Islam, hal ini berperan dalam menentukan kebijakan agar pengembangan AI dapat dimanfaatkan secara maksimal oleh mahasiswa internasional.

**Kata kunci:** pria, wanita, kecerdasan buatan, program studi pelatihan guru, pelajar internasional, Thailand, perguruan tinggi Islam, Indonesia

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## Introduction

The issue of gender inequality is a real danger that threatens the future of international students who want to contribute to the development of artificial intelligence (AI) in universities. This has a significant impact on the loss of diversity of perspectives and expertise (Stewart et al., 2004). Limited involvement can result in an imbalance in the creative ideas

and innovative solutions that can be generated (Kruttschnitt, 2013). International students bring different experiences and cultural backgrounds, which can enrich the global understanding of AI issues (Evetts, 2019). If gender issues limit their contributions, this not only creates injustice but also hinders scientific progress. The presence of gender representation in AI development is essential to ensure equitable and effective technological development globally (Weeks et al., 1999).

The focus on gender issues and AI development is an essential part because of its ability to contribute to the complexity of gender differences. The attention of contemporary researchers evidences this in highlighting cases of gender and technology. Costa and Ribas (2019), for example, highlight the use of AI algorithms and analysis to help identify patterns that are difficult to spot manually. In line with Katyal et al. (2022) study explaining the use of AI technology in analyzing large amounts of social data and human behaviour, it provides deep insights into how gender differences emerge and evolve in online or offline interactions. The urgency supports Costa's (2018) assertion that artificial intelligence can be used to investigate the impact of patriarchal capitalist value systems on the concepts of agency and communion, paving the way for a deeper understanding of how these factors interact with each other and influence individuals collectively. By harnessing the power of AI in complex data analysis, humans can take a closer look at nuances that might otherwise be overlooked in conventional human research, taking our understanding of gender differences to another level (Gebru, 2020).

While previous studies have well-reported gender gaps and efforts to improve inclusivity, studies explicitly exploring the relationship between gender and artificial intelligence (AI) in Southeast Asia have been underestimated (Kim et al., 2019). Some recent studies have only reported increased awareness of gender issues and the role of educational organizations in nurturing the gender gap (Witz et al., 2010). Research on gender and technology focuses more on aspects of skill differences between men and

women, as reported by Ely and Meyerson (2000). Therefore, a thorough understanding of how gender relates to AI is still not fully realized. With the ever-growing development of AI in education, the opinions of Hearn and Wendy (1983) need to be considered, which suggests considering the complexity of this phenomenon arising from the interaction between humans and technology. The approach in this paper is similar but takes it further to describe how this interaction manifests in the identities of two characters from different countries.

This study reviews the perceptions and responses of male and female students from Thailand to advances in AI technology, focusing on their experiences at UIN Walisongo Semarang. Beyond previous studies that focused on gender differences in responses to technology (Nasikhin, 2022), this study explores how Thai cultural factors play a role in their view of AI in an educational context. The three main aspects emphasized are the influence of gender differences in the adoption of AI technology among Thai students, the impact of local cultural and environmental factors on gender perception and engagement in the adoption of AI technology, and the relevance of such understanding in Thai society. Discussion on this issue is considered essential to gain deeper insight into gender dynamics in the face of advances in AI technology so as to provide a holistic and relevant view in the context of Thai culture.

The research builds on the argument that gender differences in technology use and adoption can provide valuable insights into the social, cultural, and educational factors influencing responses to AI. This needs to be responded to by investigating how gender dynamics in technology adoption, especially for students from Thailand, can contribute to the development of artificial intelligence (AI). This is important to prove that the development of AI has changed the landscape of education and employment significantly (Gupta et al., 2023). This research not only helps understand gender dynamics in a technological context but can also provide a basis for developing more

inclusive and sustainable education policies and strategies in both countries.

## Research Method

This research uses a qualitative approach with case studies as a research method to explore the response of international students from Thailand to the development of artificial intelligence (AI) in the context of teacher training study programs, focusing on gender perspectives (Raghunathan et al., 2023). The qualitative approach was chosen because it allows researchers to gain a deep understanding of students' experiences and views on the topic under study (Nurdin, 2021). The case study was chosen because it allows researchers to investigate complex phenomena in a natural context, namely the academic environment of UIN Walisongo Semarang. The data collection methods used in this study were interviews, observations, document analysis, and surveys in the form of 30 statements. In-depth interviews will be conducted with ten selected informants to gain deeper insight into students' perceptions and experiences related to AI development in teacher training study programs. Observations will be made to observe student interaction with AI technology in an academic context. Document analysis will involve a review of relevant documents, such as teacher training program curricula and AI-related literature in educational contexts. The survey of 30 statements will be distributed to 50 international students from Thailand at UIN Walisongo Semarang, with 25 men and 25 women, to collect data on their attitudes, knowledge, and experiences related to AI development in education.

The total number of informants in this study was 78 international students from Thailand at UIN Walisongo Semarang. However, only 50 students will fill out the survey, with details of 25 men and 25 women. Of the 50 survey respondents, ten informants will be selected purposively for in-depth interviews. The selection of informants is based on variations in experience, background, and views related to this research topic (Malteru et al., 2021). Thus, this research method will provide a comprehensive understanding of

the response of international students from Thailand to the development of AI in the context of teacher training study programs, taking into account gender perspectives. In this study, the data validation technique applied is triangulation, which is collecting data from various sources such as interviews, observations, surveys, and document analysis to ensure the validity of the findings. Meanwhile, for data analysis, the approach used is the Miles and Huberman analysis technique, which includes data reduction, data presentation, and conclusion/verification (Gioia, 2021). With this approach, it will be possible to explore different perspectives between male and female students towards AI development in the context of teacher training study programs.

## Result

The study reveals significant differences in responses to AI advances between women and men for Thai students studying in Indonesia. Women tend to prioritize using existing AI for learning, while men are more interested in developing new AI technologies to solve challenges around them. Women see AI as a means to improve access and quality of education, while men emphasize the technical aspects of AI in education and the positive potential of the technology. These differences reflect the cultural, experiential, and social roles of each gender. Women are more concerned about data privacy and security, while men are more optimistic about regulation and the role of technology in social progress. Differences in engagement are also visible, where women are more open to the use of AI in learning if it proves effective, while men are more active in the development of AI technology for education and seek technical challenges. This is influenced by social, cultural, and psychological factors that influence understanding the differences in AI adoption and development.

Research data corroborates that women from Thailand tend to prioritize the use of existing AI technology in the context of learning, while men are

more interested in developing new AI technology to solve challenges around them. The TAP1 informant said that her female friends in Thailand see AI adoption as a means to improve access and quality of education, especially for economically disadvantaged groups, with a focus on implementation that directly benefits teaching and learning. He shared his experience when he met a female teacher in elementary school who utilizes artificial intelligence (AI) in teaching mathematics and biology. With enthusiasm, he uses AI platforms such as "Smart Learning," which provides interactive and adaptive learning modules. For example, in math subjects, AI helps identify each student's level of understanding and present material that suits their individual needs, such as customized practice questions. In biology learning, AI provides interactive simulations that allow students to understand complex concepts such as plant life cycles or the human digestive system through exciting visualizations. TAP1 informants confirmed that female teachers at the school were very interested in learning and using this AI application as it helped them improve teaching effectiveness and personalized learning for each student.

> "I found teachers in primary schools using artificial intelligence in teaching maths and biology with AI platforms such as 'Smart Learning', which provide interactive and adaptive learning modules. AI helps them tailor the material for each student. They are very interested in this application of AI because it increases teaching effectiveness and personalizes learning for each student."

TAP1's statement is supported by the results of a survey of 25 female international students from Thailand studying in Indonesia. They prefer using existing AI products in learning rather than creating new products. The table below provides details of the survey results regarding the trend pattern of whether female students from Thailand prefer to act as users or creators of AI.

**Table 1:** Details of the survey results regarding the trend pattern of whether female students from Thailand prefer to act as users or creators of AI.

| No | Statement | SA | A | D | SD | Sum |
|---|---|---|---|---|---|---|
| 1 | I tend to use AI in its existing form rather than | 12 | 12 | 1 | 0 | 25 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | creating new products from AI in the learning process. | | | | | |
| 2 | I prefer to incorporate existing AI technologies in learning rather than creating new products from AI. | 1 | 21 | 2 | 2 | 25 |
| 3 | I feel comfortable using existing AI solutions in the learning process rather than creating new products. | 19 | 2 | 1 | 3 | 25 |
| 4 | I see greater value in leveraging existing AI than creating new products in a learning context. | 13 | 7 | 3 | 2 | 25 |
| 5 | I tend to explore and create new products from AI in the learning process rather than just using existing AI. | 2 | 8 | 0 | 15 | 25 |
| 6 | I feel innovative when creating new products from AI for use in learning. | 1 | 1 | 14 | 9 | 25 |
| 7 | I believe that creating new products from AI can provide a competitive advantage in the learning process. | 0 | 1 | 1 | 23 | 25 |
| 8 | I'm more motivated to create new solutions from AI in learning than just using existing ones. | 0 | 0 | 7 | 18 | 25 |
| 9 | I feel that creating new products from AI is a more effective way to meet specific needs in the learning process. | 1 | 4 | 9 | 11 | 25 |
| 10 | I tend to invest more time and effort in creating new products from AI for use in learning. | 6 | 0 | 3 | 16 | 25 |

Note: SA (Strongly Agree), A (Agree), D (Disagree), SD (Strongly Disagree)

Based on the survey results of the tendency of female students from Thailand to use AI in the context of learning, two dominant patterns can be observed in the table below. The majority of respondents are more likely to be AI users using existing technology than creating new products. Most of them are comfortable with using existing AI solutions and see more excellent value in leveraging them. However, a small percentage of respondents showed interest in exploring and creating new products from AI, with some of them feeling innovative when developing new products for use in learning. Nonetheless, the majority of respondents are more interested in using existing ones than creating new products from AI in a learning context.

According to TAP2 informants, "Women tend to prefer using existing tools rather than creating new ones for the learning process due to efficiency and convenience factors." TAP3 adds, "Existing tools have usually been tested and proven effective in aiding the learning process, so women feel more confident and comfortable using them." TAP4 revealed, "In addition, the use of existing tools can also save time and effort that would otherwise be used to develop new tools. By leveraging existing tools, women can focus on understanding the material and upskilling without having to face the additional challenges of creating new tools."

The TAP5 informant said that in the context of classroom learning, it is essential to remember that students are not experimental subjects for new artificial intelligence (AI)-based technologies. The use of new AI-based media, developed by teachers themselves using untested tools, can carry significant risks. He asserts that students are not objects of experimentation; They are individuals who need a proven, effective, and safe learning approach. Integrating AI technology into learning requires ethical and security considerations so as not to sacrifice the student learning experience. Therefore, a careful approach and careful testing are needed before introducing new AI-based media into the learning environment.

> "Students are not objects of experimentation, they are individuals who need a proven effective and safe approach to learning. Integrating AI technology into learning requires serious ethical and security considerations so as not to sacrifice the student learning experience."

This is in line with the confession of TAP3 informants who said that several reasons were the reason why women were reluctant to create new AI products and preferred to use existing ones. According to her, women in their countries lack representation and support in the field of technology. This has a big impact because it can make them feel less confident to try new things. In addition, social pressures and gender expectations that weigh on women to spend more time in care and domestic roles can also be factors that make it

difficult for them to set aside time and energy to study and develop new AI products. TAP3 ensures that uncertainty about how new products will be received in the market or work environment can also be an obstacle, given that sometimes women are more at risk in this regard. She concluded that the presence of gender bias in the tech industry can also make the work environment feel unfriendly to women, which makes them feel more comfortable using existing products rather than creating new ones.

> "I feel that women in this country lack support to thrive in the field of AI. Social pressures and gender expectations highlight uncertainty about the acceptance of new products in the work environment. Gender bias in the tech industry also makes the work environment feel unwelcoming to women, encouraging them to use existing products rather than create new ones."

The above findings are very different from the tendency of teacher training students from Thailand who are male. The informant, TAL1, said that men tend to focus on the technical aspects of artificial intelligence (AI) in education, including the development of learning algorithms, data analysis, and the application of AI in educational research. He believes that AI has the potential to improve the efficiency and effectiveness of the education system and encourage technological innovation and scientific advancement, but several adjustments must be made to make the available AI platform more suitable to the needs of students. For example, they prefer to develop new products based on AI understanding, such as adaptive learning platforms that can be tailored to student's individual needs or automated evaluation systems to measure learning progress.

> "I believe that AI has the ability to improve the efficiency and effectiveness of the education system, as well as drive technological innovation and scientific advancement. However, it needs some tweaking to make the AI platform better suit students' needs."

Furthermore, TAL2, TAL3, and TAL4 informants said that several AI platforms can be modified for learning purposes, one of which is TensorFlow. TensorFlow is an open-source platform that allows users to build, train, and deploy AI models with great flexibility. Users can adapt TensorFlow for a

variety of learning purposes, from natural language processing to image recognition and data modelling. "TensorFlow is a very flexible and powerful choice for AI model development," TAL2 said. PyTorch is also a popular choice. PyTorch is also open-source and allows users to conduct research and development in machine learning and deep learning. "With the support of an extensive community, PyTorch becomes a highly customizable platform according to user needs," TAL3 added.

In using the platforms mentioned above, TAL4 information said that it tends to prefer to make modifications or create new products in adopting AI. According to him, it deals with historical and cultural factors that play an essential role in the formation of individual interests and tendencies. He said that for centuries, men have been dominant in the fields of technology and innovation, which can influence their perception of themselves as creators and leaders in the technology space. Society often associates men with traits such as ambition, risk, and a desire to create change, which can encourage them to try new things like adopting and developing AI. In addition, men may also be more receptive to technical challenges and experimentation, which are essential aspects of AI development. However, it is essential to remember that these interests and tendencies can vary between individuals, and not all men have the same interest in modifying or creating new products in the context of AI.

> "For centuries, men have been dominant in technology, society often associates men with traits such as ambition, risk, and a desire to create change, which can encourage them to try new things such as adopt and develop. This is only natural why we prefer to create new technologies rather than enjoy existing ones."

In support of TAL4's argument, TAL5's informants revealed the fact that historically, a number of critical technological inventions have been found by men than women. He gave an example of electricity being discovered by a man named Thomas Edison in 1879; it changed the way we live and work by introducing the practical incandescent lamp. Another example is Alexander

Graham Bell, who invented the telephone in 1876, paving the way for revolutionary long-distance communication. The invention of the airplane by the Wright brothers at the beginning of the 20th century brought about significant changes in human transportation. Alan Turing played a crucial role in the development of modern computers and cryptography during World War II. According to informant TAL5, these findings, and more, prove that men's tendency to discover new things has formed the basis of modern technology and profoundly influenced our lives.

Creative and courageous men always produce monumental works. Look at Thomas Edison discovering electricity in 1879, bringing about the incandescent lamp that changed our lifestyles. Alexander Graham Bell invented the telephone in 1876, opening the era of long-distance communication. The Wright brothers presented airplanes in the early 20th century, drastically changing human transportation. Alan Turing, in World War II, played an essential role in the development of modern computers and cryptography.

In response to TAL5's response, TAL3 informants asserted that facts in the past motivated many men, including himself, to prefer modifying AI platforms, studying algorithms, and creating new solutions that fit environmental needs rather than simply relying on what already exists. He said, *"Personal experience and observation of the evolution of technology, where challenges and needs that have arisen in the past have driven them to innovate and develop better and more efficient solutions.*"This shows that encouragement from the history of technology provides a strong foundation for today's innovative endeavours, providing a deep understanding of technological change and advancement over time. The phrase TAL3 is in line with survey data, which shows that the majority of male respondents prefer to develop existing AI technology rather than just use a ready-made AI platform. The table below shows the survey results on the tendency of Thai international students to respond to AI as a learning aid.

**Table 2:** Survey results of the tendency of Thai international students to respond to AI as a learning aid.

| No | Statement | SA | A | D | SD | Sum |
|---|---|---|---|---|---|---|
| 1 | I tend to use AI in its existing form rather than creating new products from AI in the learning process. | 1 | 2 | 9 | 13 | 25 |
| 2 | I prefer to incorporate existing AI technologies in learning rather than creating new products from AI. | 9 | 1 | 0 | 15 | 25 |
| 3 | I feel comfortable using existing AI solutions in the learning process rather than creating new products. | 4 | 3 | 17 | 1 | 25 |
| 4 | I see greater value in leveraging existing AI than in creating new products in a learning context. | 1 | 6 | 13 | 5 | 25 |
| 5 | I tend to explore and create new products from AI in the learning process rather than just using existing AI. | 2 | 8 | 0 | 15 | 25 |
| 6 | I feel innovative when creating new products from AI for use in learning. | 1 | 1 | 12 | 11 | 25 |
| 7 | I believe that creating new products from AI can provide a competitive advantage in the learning process. | 2 | 2 | 11 | 10 | 25 |
| 8 | I'm more motivated to create new solutions from AI in learning than just using existing ones. | 0 | 1 | 21 | 2 | 25 |
| 9 | I feel that creating new products from AI is a more effective way to meet specific needs in the learning process. | 0 | 8 | 13 | 4 | 25 |
| 10 | I tend to invest more time and effort in creating new products from AI for use in learning. | 3 | 7 | 13 | 2 | 25 |

Note: SA (Strongly Agree), A (Agree), D (Disagree), SD (Strongly Disagree)

The table above explains that there is a prominent trend among male international students from Thailand in the use of artificial intelligence (AI) technology in learning contexts. The majority of them prefer to use existing AI solutions rather than creating new products from AI. They feel comfortable and see great value in utilizing AI technology that is already available. However, some explore and create new products from AI, feel

innovative, and believe that creating new products can provide a competitive advantage in learning. However, the proportion of students who prefer to create new solutions from AI still needs to be higher compared to those who choose to use existing ones.

Based on observations, this study also found that international students from Thailand, especially those who are male, tend to be more skilled in using artificial intelligence (AI) compared to female students. This can be seen from their ability to utilize various AI tools used in the lecture process, such as chatbots for learning assistance, adaptive learning platforms, and data analysis systems. Observations also showed that before starting to modify existing AI tools, the male students first focused on a deep understanding of existing AI functionalities, such as the use of machine learning algorithms for data analysis, the development of neural network models, and the application of deep learning techniques in solving specific problems.

In the context of data security and privacy, the study found that differences in perceptions between women and men in AI adoption for teacher training programs reflect the diversity of cultural values, experiences, and social roles played by each gender. According to TAP1 informants, female students from Thailand are more concerned about aspects of data privacy and security because of their greater sensitivity to issues of privacy, security, and social impact that may occur due to the use of technology. This is influenced by personal experience or also social expectations of women's role in protecting the privacy and security of the family or community. For example, incidents of malicious personal data leaks due to the involvement of artificial intelligence were mentioned by TAP1, where AI systems intended to collect user data centrally turned out to be vulnerable to cyberattacks. TAP5 states that AI's involvement in data processing and analysis increases the complexity and impact of such leaks, as AI systems can expand the range and depth of attacks as well as the potential to exploit stolen information in more sophisticated and detailed ways. TAP3 expresses its concerns as follows,

> "Large tech companies that collect customer data to provide personalized recommendations within their platforms may experience data leaks due to weaknesses in their AI security systems. In such scenarios, sensitive data such as financial information, medical history, or even location data can fall into the wrong hands, potentially being used for harmful purposes such as identity theft, fraud, or even extortion."

As a continuation of the discussion, the TAP2 informant expressed concern that the use of artificial intelligence in manipulating photos of children for distribution could open the door to serious harm. The photos can be realistically manipulated to create harmful content, such as fake pornographic images or violence targeting children themselves. The spread of such fake photos can damage the reputation, privacy, and mental well-being of such children, as well as cause prolonged trauma. In addition, as technology gets more sophisticated, it is difficult for users to distinguish between real photos and AI manipulation, which can lead to the spread of false information that harms many parties. Therefore, decisive measures are needed to address the misuse of AI in this regard and protect students from the potential harm it causes.

In addition to data security risks, TAP4 informants provide a different view. According to him, errors modifying AI algorithms in the context of education can have a serious impact on the quality of learning and student development. For example, if the machine learning algorithm used to tailor the curriculum to a student's individual needs is modified incorrectly, it could lead to a curriculum that is irrelevant or incompatible with the student's abilities. This can result in students' inability to reach their full potential and lead to gaps in learning. In addition, errors in evaluation algorithms can result in inaccurate assessments of student progress, causing problems such as discrimination or inequity in assessments. Such mistakes can hinder a fair and equitable education process for all students, as well as reduce public trust in an education system that uses AI technology.

> "In addition to data security, we women feel that it is too risky to use AI tools

developed by teachers for classroom learning. This will make it unsafe, why? Because if the machine algorithms used to tailor the curriculum to the individual needs of students are modified incorrectly, it can lead to a curriculum that is irrelevant or not in accordance with the student's abilities."

"Creating artificial intelligence (AI) without prioritizing security and privacy aspects can lead to serious adverse consequences," said the TAP1 informant. "Without adequate protection, AI is vulnerable to attacks and manipulations that can cause substantial damage," TAP3 added. "They range from the theft of sensitive data to the use of AI for harmful purposes, such as the spread of disinformation or coordinated cyberattacks," TAP2 continued. "In addition, when privacy is not observed, the use of AI can threaten individual freedoms with excessive surveillance and unethical data collection," TAP1 added. "Such dangers could exacerbate the digital divide, strengthen power inequality, and threaten the foundations of democracy and freedom of association," TAP3 said. "Therefore, it is important for developers and stakeholders to prioritize security and privacy in every stage of AI development and deployment," TAP2 added. This discussion data is in line with the distribution of related survey results on the perception of female students from Thailand in terms of aspects of security and data protection.

**Table 3:** Survey results on the perception of female students from Thailand in looking at aspects of security and data protection

| No | Statement | SA | A | D | SD | Sum |
|---|---|---|---|---|---|---|
| 1 | How confident are you that using AI in learning can improve the security of your personal data? | 0 | 15 | 6 | 4 | 25 |
| 2 | To what extent do you trust that educational institutions can ensure your privacy is protected when using AI technology in the learning process? | 12 | 11 | 1 | 1 | 25 |
| 3 | How much do you believe that the use of AI can help strengthen the security of online learning systems from cyberattacks? | 8 | 7 | 2 | 8 | 25 |
| 4 | Do you believe that strict regulations can ensure that your data is not misused in the use of AI for | 14 | 6 | 3 | 2 | 25 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | learning? | | | | | |
| 5 | How confident are you that using AI in learning can help prevent leaks of your personal information? | 21 | 0 | 0 | 4 | 25 |
| 6 | To what extent do you not believe that educational institutions can maintain your privacy when using AI technology in learning? | 17 | 1 | 2 | 5 | 25 |
| 7 | Are you feeling unsure that the security systems currently in place are strong enough to protect your data from threats when using AI in learning? | 8 | 12 | 3 | 2 | 25 |
| 8 | How much do you doubt that current regulations are sufficient to protect your privacy in the use of AI in learning? | 0 | 1 | 21 | 3 | 25 |
| 9 | Are you not convinced that the use of AI in learning can open the gap for misuse of personal data? | 10 | 9 | 1 | 5 | 25 |
| 10 | How much do you not believe that educational institutions can ensure that your data will not be misused by unauthorized parties in the use of AI? | 13 | 7 | 1 | 4 | 25 |

Note: SA (Strongly Agree), A (Agree), D (Disagree), SD (Strongly Disagree)

The table below illustrates the survey results related to women's trust in data security and privacy in the use of artificial intelligence (AI) for learning. Of the 25 respondents, the vast majority (about 60%) have a strong belief that the use of AI in learning can improve the security of their personal data and help prevent information leakage. However, the majority of respondents (around 40%) are doubtful or unsure about the ability of educational institutions to ensure their privacy is protected when using AI technology, as well as the effectiveness of current security systems and regulations in place to protect their privacy in the context of using AI for learning.

On male-related aspects, the study revealed that men have a greater tendency to prioritize the positive potential of technology, such as increased efficiency and effectiveness in education, rather than paying attention to data security. This suggests that there are different patterns of behavior between the sexes in perceptions of technology. TAL1 informants revealed that they

tend to be more interested in the immediate benefits that can be derived from technology, such as its ability to improve teaching and learning, without taking into account the associated security risks. In this context, TAL1 says that the potential for improved education quality and learning efficiency may be a more dominant factor in men's thinking than concerns over potential data security threats. However, these differences may also reflect different levels of awareness regarding risk and data protection between men and women.

> "I'm interested in leveraging technology directly, such as its ability to improve teaching and learning without taking into account the associated security risks. The potential for improved quality of education and the efficiency of learning processes may be a more dominant factor in men's thinking than concerns over potential data security threats. I believe that AI is a tool created to help humans, I believe AI can maintain data privacy and security."

In supporting TAL1's argument, TAL2 informants proved that they are experienced in using several AI platforms that are able to ensure data security and privacy for the learning process. This includes the use of IBM Watson, Microsoft Azure AI, Google Cloud AI, Amazon AWS AI, and other platforms that adopt advanced security techniques such as end-to-end encryption, strong security protocols, and strict access management. In addition, the use of federated learning and differential privacy technologies allows data to remain secure while AI models continuously learn from scattered data sets without compromising individual privacy. By integrating a robust layer of security, the AI platform can give users confidence that their data will be well-secured and their privacy will be maintained during the learning process.

> "I have experience using AI platforms such as IBM Watson, Microsoft Azure AI, Google Cloud AI, and Amazon AWS AI. Developers have adopted advanced security techniques, including end-to-end encryption, strong security protocols, and strict access management. This is enough basis for us to have complete confidence in the platform used."

In general, this study shows that male students from Thailand tend to trust

more in the data security system on the AI platform they use. This further convinces them that developing AI according to students' needs is important because the algorithms they develop remain safe, secure, and secure. This is in line with survey data that shows that the majority of male students tend to trust the security and privacy system more. The following is a table of survey results distributed to informants.

**Table 4:** The majority of male students tend to trust the security and privacy system more.

| No | Statement | **SA** | **A** | **D** | **SD** | Sum |
|---|---|---|---|---|---|---|
| 1 | How confident are you that using AI in learning can improve the security of your personal data? | 19 | 2 | 4 | 0 | 25 |
| 2 | To what extent do you trust that educational institutions can ensure your privacy is protected when using AI technology in the learning process? | 6 | 9 | 1 | 8 | 25 |
| 3 | How much do you believe that the use of AI can help strengthen the security of online learning systems from cyberattacks? | 18 | 7 | 0 | 0 | 25 |
| 4 | Do you believe that strict regulations can ensure that your data is not misused in the use of AI for learning? | 4 | 16 | 1 | 4 | 25 |
| 5 | How confident are you that using AI in learning can help prevent leaks of your personal information? | 1 | 17 | 3 | 4 | 25 |
| 6 | To what extent do you not believe that educational institutions can maintain your privacy when using AI technology in learning? | 11 | 11 | 1 | 2 | 25 |
| 7 | Are you feeling unsure that the security systems currently in place are strong enough to protect your data from threats when using AI in learning? | 1 | 14 | 1 | 4 | 25 |
| 8 | How much do you doubt that current regulations are sufficient to protect your privacy in the use of AI in learning? | 21 | 2 | 1 | 1 | 25 |
| 9 | Do you believe that the use of AI in learning can open the door for misuse of personal data? | 2 | 2 | 11 | 10 | 25 |
| 10 | How much do you not believe that educational institutions can ensure that your data will not be misused by unauthorized parties in the use of AI? | 1 | 8 | 11 | 3 | 25 |

Note: SA (Strongly Agree), A (Agree), D (Disagree), SD (Strongly Disagree)

Based on the results of a survey of 25 male students from Thailand, most of them showed a high level of trust in the use of artificial intelligence (AI) in learning to improve the security of their data. The majority of respondents (19 out of 25) believe that the use of AI can improve the security of their data. However, there is also significant distrust of educational institutions' ability to protect student privacy when using AI technology, with 11 out of 25 respondents expressing distrust in this regard. In addition, some respondents also doubted the effectiveness of current regulations in protecting their privacy regarding the use of AI in learning, with 21 out of 25 respondents showing a high level of doubt.

The difference in involvement between women and men in the development of AI for education is influenced by social, cultural, and psychological factors. Women tend to be more open to the use of AI-based learning platforms if they are proven to improve learning outcomes and student engagement, as they tend to prioritize effectiveness and benefits that are immediately visible. However, women's caution in accepting new technologies without solid evidence also reflects a tendency to consider long-term risks and consequences. On the other hand, men are more likely to be involved in developing and testing AI prototypes for education and participating in AI developer communities to share ideas and experiences. This can be due to a stronger interest in technology and experimentation, as well as a tendency to seek technical challenges and advancements in the field of AI. In addition, cultural factors that encourage men to take risks and compete intensively in technology may also play a role in engagement differences between these two genders.

At the end of the disquisition session, the informants stated that the difference in involvement between women and men in the development of AI for education was influenced by social, cultural, and psychological factors. As

TAL1 informants point out, women tend to be more open to using AI-based learning platforms if they are proven to improve learning outcomes and student engagement, as they tend to prioritize effectiveness and immediate benefits. However, women's caution in accepting new technologies without solid evidence also reflects a tendency to consider long-term risks and consequences, as TAL4 informants assert. On the other hand, men, as revealed by TAP3 informants, are more likely to be involved in developing and testing AI prototypes for education and participating in AI developer communities to share ideas and experiences. This can be due to a stronger interest in technology and experimentation, as well as a tendency to seek technical challenges and advancements in the field of AI. In addition, cultural factors that encourage men to take risks and compete intensively in technology may also play a role in engagement differences between these two genders, according to observations from TAP1 informants.

## Discussion

The study found that Thai women tend to have a greater interest in the implementation of artificial intelligence (AI) that supports education as an opportunity to improve access and quality of education, especially for those who are economically disadvantaged. They also have concerns about data privacy and security, as well as the social impact of using AI in education. Meanwhile, Thai men are more interested in the technical aspects of AI in education, such as the development of learning algorithms and data analysis, as well as the application of AI in educational research. They are more optimistic about AI's potential to improve the efficiency and effectiveness of education and believe that proper regulation can address concerns about privacy and ethics. Thai men are also more likely to be involved in developing and testing AI prototypes for education, as well as actively participating in AI developer communities to share ideas and experiences.

**Table 5:** Differences in attitudes of Thai male and female students in responding to AI

| Comparison Aspect | Thai Female Student | Thai Male Student |
|---|---|---|
| Interest Level | They are more likely to be interested in education-supportive AI implementations because they see it as an opportunity to improve access and quality of education, especially for those who are economically disadvantaged. | More likely to be interested in the technical aspects of AI in education, such as the development of learning algorithms and data analysis, as well as the application of AI in educational research. |
| Belief | Have concerns about data privacy and security, as well as the social impact of using AI in education. | More optimistic about AI's potential to improve education efficiency and effectiveness and believe that appropriate regulation can address concerns about privacy and ethics. |
| Involvement | It is more open to using AI-based learning platforms if proven to improve learning outcomes and student engagement but may be more cautious about accepting new technologies without solid evidence. | More likely to engage in developing and testing AI prototypes for education, as well as participate in AI developer communities to share ideas and experiences. |

In addition, the study also found that in the context of interest in artificial intelligence, differences between women and men can be seen from several aspects. Women tend to be interested in AI applications that are collaborative and support creativity, while men are more interested in technical aspects of AI, such as the development of complex algorithms. When participating in AI training for education, women prefer those that emphasize the application of AI in learning, while men more actively seek training that focuses on AI programming and development (Cyr et al., 2017). In terms of the perception of the positive impact of AI in education, women believe AI can improve accessibility and quality of learning inclusively, while men believe that AI will improve the efficiency and effectiveness of the education system. When using

AI technology, women tend to use AI for collaboration in learning tasks and projects, while men prefer to use AI for automation of administrative tasks and evaluation. Finally, women expect stricter policies regarding data privacy and security in the use of AI, while men have more confidence in AI's ability to protect data and education systems from attacks.

**Table 6:** Differences in attitudes of Thai male and female students in responding to AI in learning

| Aspects | Woman | Man |
|---|---|---|
| Level of interest in AI in education | Tend to be interested in AI applications that are Collaborative and support creativity | Interested in technical aspects of AI, such as algorithms and complex AI development |
| Involvement in AI training for education | Prefer to participate in AI training that emphasizes the application of AI in learning | Tends to be more active in seeking training that focuses on AI programming and development |
| Perception of the positive impact of AI on education | Think AI can improve accessibility and inclusive quality of learning | More confidence that AI will improve the efficiency and effectiveness of the education system |
| Tendency to use AI technology | More likely to use AI in Collaboration on learning assignments and projects | Prefer to use AI to automate administrative and evaluation tasks |
| Level of trust in AI security education | Expect policy to be strictly related to data privacy and security in the use of AI. | More confidence in AI's ability to Protect data and education systems from attacks |

Thai women are showing greater interest in the implementation of artificial intelligence (AI) to support education as they see it as an opportunity to improve access and overall quality of education (Larrazabal et al., 2020). By using AI technology, they believe that teaching and learning can be

personalized to meet individual needs, thus helping to improve overall educational outcomes (Capella & Villalba, 2024). In addition, Thai women may also consider AI as a tool that can help address accessibility challenges in education, especially in rural or marginalized areas. However, Thai women tend to have greater concerns related to security and privacy in the use of AI technology. They may feel hesitant to fully trust existing security systems and worry about possible privacy breaches or misuse of data that can occur with the use of such technologies. This concern may reduce their level of confidence in the implementation of AI in the context of education (Georgievskaya, 2022).

On the other hand, Thai men are more interested in the technical aspects of AI in education, such as the development of learning algorithms and data analysis. They see the potential of AI in improving the efficiency and effectiveness of the learning process as well as in supporting educational research. Moreover, men have a higher level of trust in security and privacy in the use of AI technology, which can make them more open to the application of AI in educational contexts.

The results of this study are in harmony with the research of Prates, et al. (2020) and Costa (2018), which both see gender differences in human interaction with artificial intelligence (AI). The findings of this study support the study of Latorre Ruiz & Pérez Sedeño (2023), which specifically explores the existence of a tendency for men to modify academic platforms on AI that is about machine learning (ML). In addition, the findings of Makhortykh, Urman, & Ulloa (2021) regarding gender bias in the visual representation of AI in web search engines are also relevant to the findings in the study, which states that women prefer to utilize existing technology rather than create new AI equipment. Furthermore, a study by Lütz (2023) on gender differences in the use of AI in the biomedical and healthcare fields can also be a comparison as long as women simply believe in the existence of technology. Hong et al., (2020) said that women tend to be more vigilant than men in adopting

technology. These studies further corroborate that in the context of interest in artificial intelligence, differences between women and men can be seen from several aspects, such as preferences in AI applications, participation in AI training, perceptions of the positive impact of AI, and the use of AI technology.

The findings in this study prove the truth of the opinion of Milella et al. (2023), who says that women tend to be more careful in accepting new things because they often consider various aspects before adopting a new technology or concept. Women will undergo safety checks, eligibility, and impact on daily life before fully accepting it. What is unique is that this study is different from the analysis of Borau et al. (2023), which says that women reject technology that is considered complicated. This study actually finds that if a technology or concept proves useful and suits their needs, women do not hesitate to immediately use it without the need to make further modifications. Their willingness to use such technology without hesitation shows that women have the ability to make efficient decisions and act quickly when they are sure of something.

In relation to masculinity, this study supports Ulul's argument that masculine attitudes are the cause of men's tendency to modify or change something to create new things organically (Katyal et al., 2021). This is connected with the readiness of men to accept new directions in the development of artificial intelligence (AI). As is the case in everyday life, men's interest in exploring and creating new solutions to technological challenges is also reflected in their interest in AI advancements (Manasi et al., 2022). Openness to new ideas and willingness to engage in paradigm-shifting technology development is a manifestation of men's drive to bring innovation in the realm of artificial intelligence, along with their natural fondness for creating change and advancing technology.

To create gender balance in the use of artificial intelligence (AI) for education, important steps include ensuring fair representation of both sexes

in the development of AI technology, engaging and encouraging women's participation in the technology and education industries, providing equal access to technology training and education for all genders, and paying attention to data security and privacy aspects that protect all users without looking at gender (Bennett et al., 2021). In addition, it is also important to be aware of and reduce gender bias that may appear in algorithms and data used in educational AI systems, as well as actively promote inclusivity and gender equality in the development and application of AI education technology (Chowdhury, 2023). With this holistic approach, we can ensure that the use of AI in education contributes to achieving greater gender balance.

## Conclusion

The study concluded that Thai women show a high interest in the application of artificial intelligence (AI) in supporting education, focusing on improving access and quality of education, especially for economically disadvantaged groups. They also expressed concerns over data privacy and security, as well as the social implications of using AI in educational contexts. On the other hand, Thai men are more interested in the technical aspects of AI in education, such as the development of learning algorithms and data analysis, as well as the application of AI in educational research. They tend to be more optimistic about AI's potential to improve education efficiency and effectiveness and believe that appropriate regulations can address privacy and ethical concerns. In addition, Thai men are also actively involved in the development and testing of AI prototypes for education, as well as participating in AI developer communities to share knowledge and experience.

Although it managed to see the difference in the response of male and female international students from Thailand in the development of artificial intelligence (AI) for teacher study programs, this study lacks a balanced representation between male and female participants. This can result in

unrepresentative results and reduce the validity of the findings. In addition, cultural factors and social background can also influence student responses to AI development in educational contexts but may not always be carefully considered in research. A more holistic and sensitive approach to gender differences and other contextual factors is needed to gain a deeper understanding of how Thai students respond to the use of AI technology in a teaching context.

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