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APAIE Perth 4 - 8 March 2024

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Session 3F: Tues 5th March, 14:00 – 14:45

Unlocking Career Pathways: Retaining International Talents

Li-Wei Chou
National Yang Ming Chiao Tung University, Taiwan

Emirati Students' Voices on Generative AI: Perceptions, Benefits, and Challenges

Ghadah Al Murshidi
United Arab Emirates University, UAE

Chair

NATIONAL
YANG MING CHIAO TUNG
UNIVERSITY

Unlocking Career Pathways

Retaining International Talents

Prof. Li-Wei Chou, Deputy Vice President for International Affairs

Where are we from?

Taipei

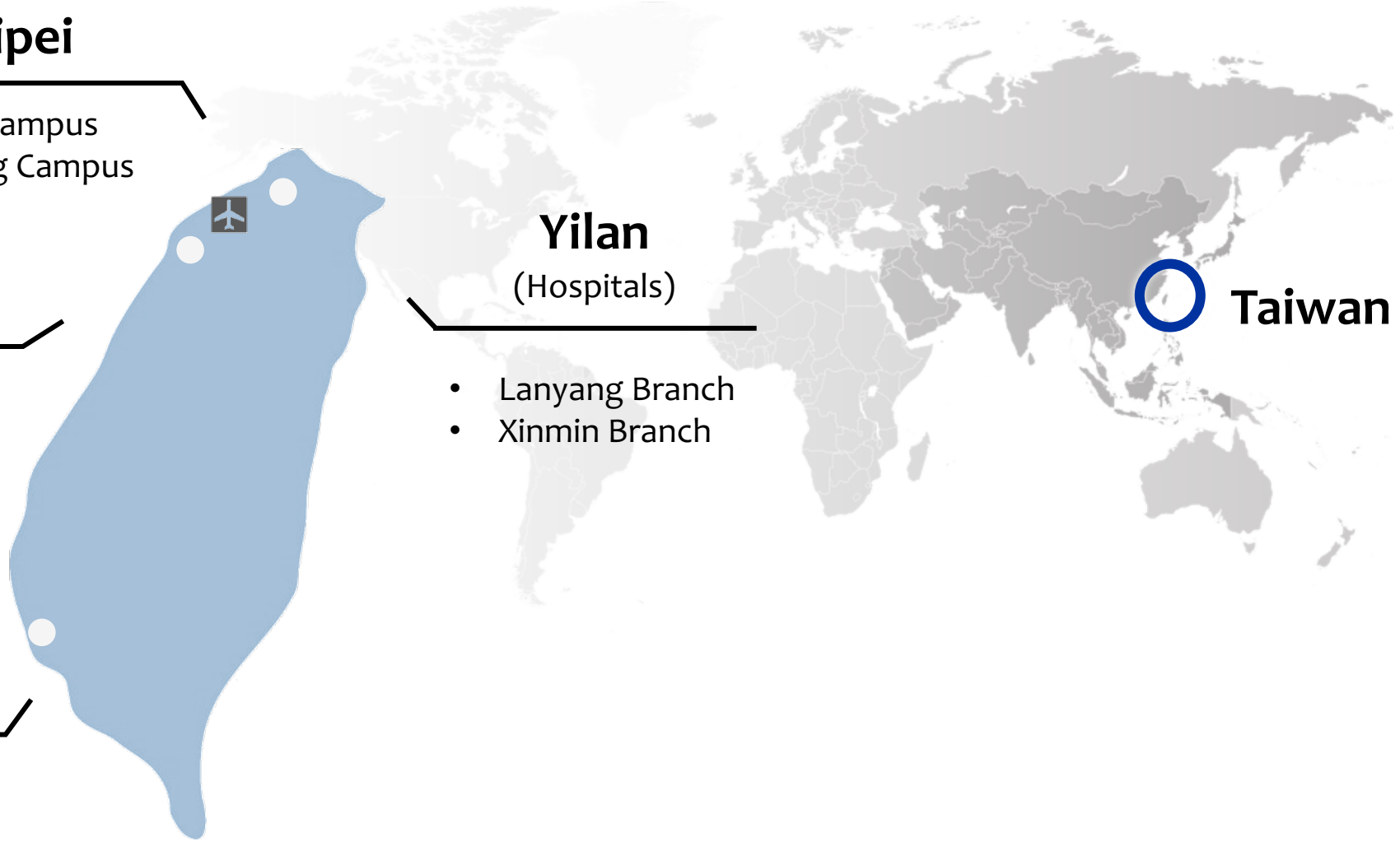
- Beimen Campus
- Yangming Campus

Hsinchu

- Guangfu Campus
- Boai Campus
- Liujia Campus

Tainan

- Gueiren Campus



Yilan

(Hospitals)

- Lanyang Branch
- Xinmin Branch

Taiwan

History

National Yang-Ming University

真知力行，仁心仁術

Apply knowledge into practice; Benevolent in mind and soul.

1975 In Taipei — National Yang-Ming College of Medicine

1994-2020 Comprehensive University — National Yang-Ming University

National Chiao Tung University

知新致遠，崇實篤行

Learn new knowledge and reach far; Honor the truth and work hard.

1896 Shanghai (China) — Nanyang College

1958 Reestablished in Hsinchu (Taiwan) — Institute of Electronics

1959-1978 — College of Engineering

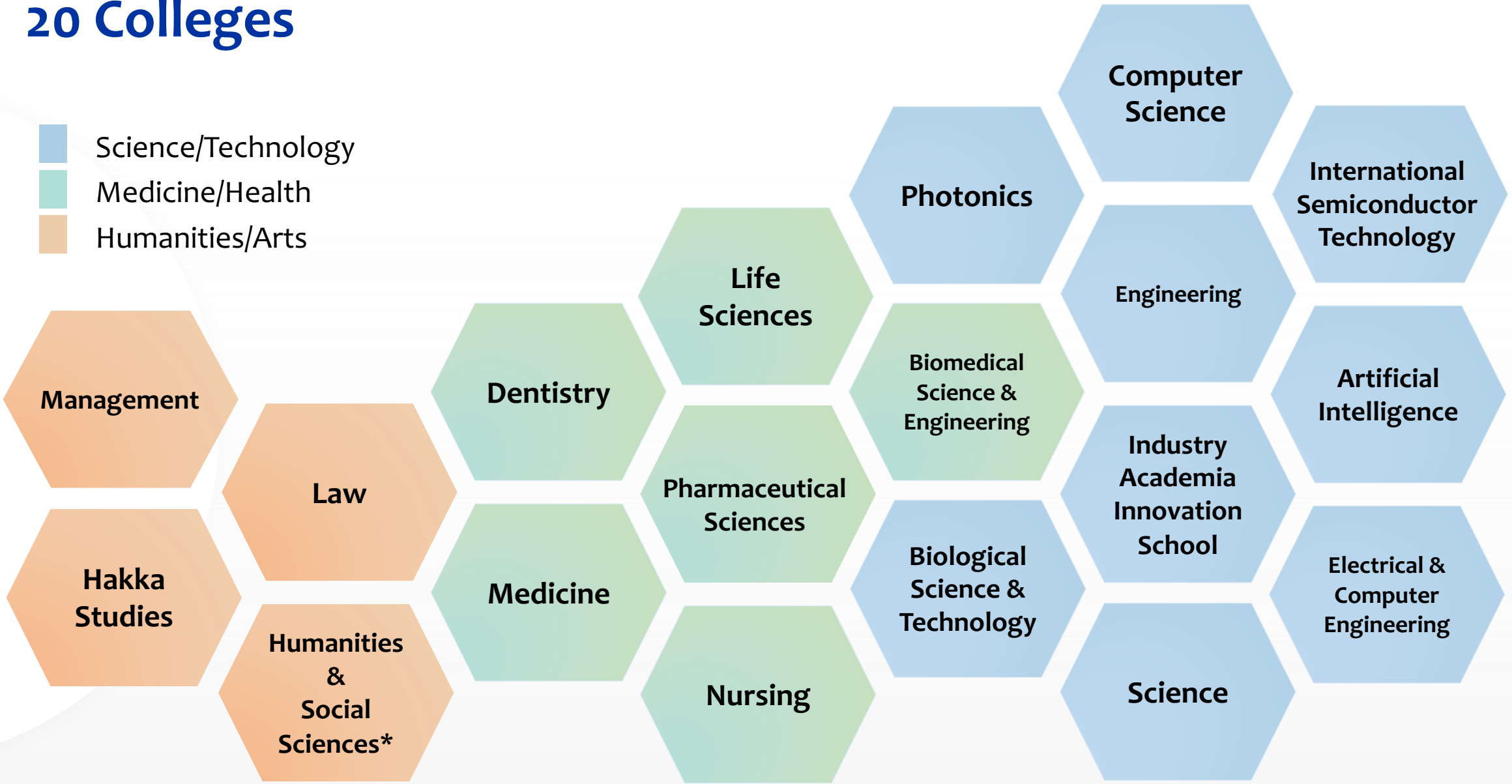
1979-2020 Comprehensive University — National Chiao Tung University

2021 February, 2021

National Yang Ming Chiao Tung University

20 Colleges

Science/Technology
Medicine/Health
Humanities/Arts



*There is one College of HSS on each campus.

NYCU at a Glance

21,703 Students

(1,300 Overseas Students)

8,612	Undergraduates
13,091	Graduates
1,154	Full-time faculties
958	Part-time faculties
89	Research Staff
253	Staff

(135 International Faculties)

QS Top University Ranking **#217**

(by subjects)

#155	Engineering-Electrical & Electronic
#191	Computer Science & Information Systems
#150	Engineering & Technology
#199	Medicine
#137	Nursing

Updated: 2023/10/15

Why Taiwan?

- Friendly and welcoming people
- Excellent national healthcare system
- Extremely safe
- Low cost of living
- First country in Asia to legalize same-sex marriage
- Comprehensive transportation system
- Democratic society
- Close proximity to the nature
- Convenient to live in

National Policies

Policies to increase population and immigration

Issues:

- Aging population
- Declining birth rates
- Competition for international talents

Policies:

- Implementing the Act for the Recruitment and Employment of Foreign Professionals
- Promoting a program for long-term retention of migrant workers
- Easing employment regulations and scoring criterial requirements for foreign and overseas students graduating from Taiwanese schools

The Ministry of Education is to boost enrollment and retention of international students

Promote international talent exchanges and reciprocity

- Identify key areas for International Cooperation Alliance and establish International Industry-Academic Education Cooperation Alliance
- Setup overseas bases for short-term and degree student recruitment, Mandarin courses

Offer incentives to study and study in Taiwan

- Collaborate with the industry and offer scholarships and stipend to degree seeking students in order to increase the incentives

Increase international students' rate of post-graduation employment in Taiwan

- Strengthen the support system and linkage for local hire

1

Creating a supportive educational environment

Mandarin Courses & Activities

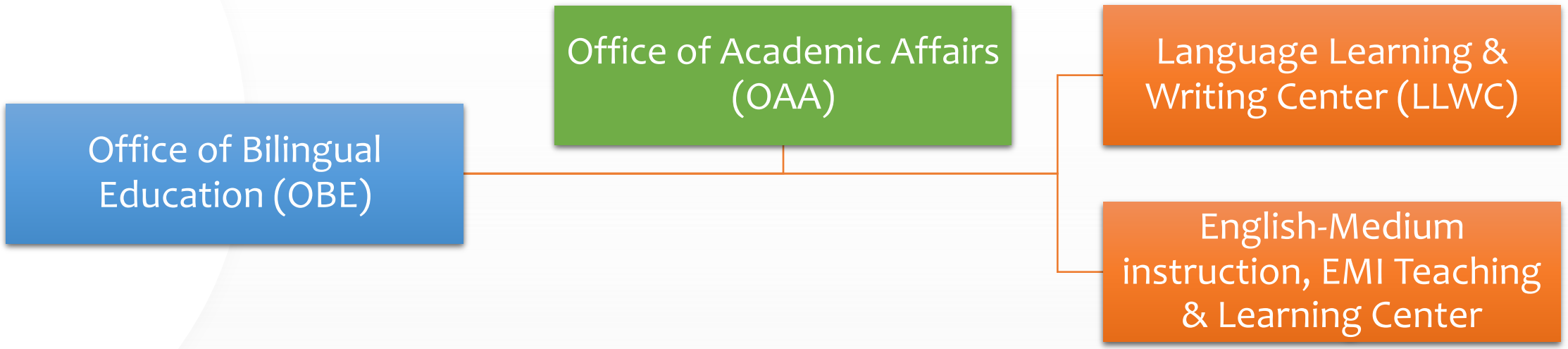
Paper Cutting

Free

Chinese Calligraphy

Cultural Salon

Bilingual Education and Services



2

Promoting cross-cultural connections

Conversation Circle: Fostering Cross-Cultural Connections

Engagement:

- Each session is carefully crafted by the OIA, featuring handouts on diverse topics ranging from Taiwanese culture to campus life and Mandarin learning.
- The event has garnered enthusiastic participation, with over 400 students joining each semester and offering positive feedback.

Impact:

- Encourages linguistic and cultural immersion.
- Builds bridges between international and local students.
- Promotes a more inclusive and supportive campus environment.

NYCU Flow

Engagement:

- Committed to inviting elites from various fields to share their diverse work experiences and strategies for overcoming cultural barriers abroad with both students and faculties.
- The seminars attract approximately 50 participants for each lecture, and we organize 3 to 4 lectures each semester.

Impact:

- Broaden the participants' international perspectives and horizons.
- Create opportunities for exploring different habits or career fields.
- Encourage students to step out of their comfort zones.

3

Providing comprehensive career development opportunities

Employment Strategies

Information Session

Open House
Recruitment Expo

Company Visit

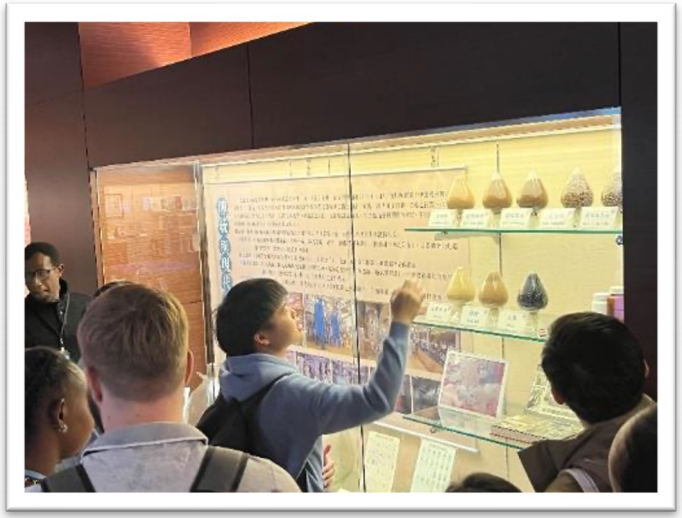
Visiting to Companies in Biomedical Fields

Superlab Co. Ltd. & Formosa Laboratories, Inc.:

- 2 faculties led 8 students from Vietnam to visit biomedical entrepreneurs in Taiwan.

Sheng-Chang Pharmaceutical Company:

- Chinese Herbal Medicine.
- Students gained a deeper understanding of the technological applications of traditional Chinese medicine in the local industry from an international perspective.
- Strengthened the connections between international community and local industrial chain.



Taiwan Semiconductor Talents Recruitment Activity

2023/10/18:

- Participants: 77 non-local students with semiconductor background
- No. of students participated in company interview: 43
- No. of students accepted by companies: 5

2024/3/9:

- No. of registered participants: 131
- Estimated no. of students participated in company interview: 28
- Estimated no. of students accepted by companies: 5

Exit Survey for International Students

Year	Intend to work in Taiwan		Intend to study in Taiwan		TOTAL for intend to stay in Taiwan	
	No.	%	No.	%	No.	%
2023	149	29.2%	19	3.7%	168	33%

Q&A

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Emirati Students' Voices on Generative AI: Perceptions, Benefits, and Challenges

Dr. Ghadah Al Murshidi

College of Education UAE University

Transformative Potential of Generative Artificial Intelligence (GAI) in Education

Definition & Popular Model:	•GAI: Machine learning creating outputs without supervision (Baidoo-Anu & Ansah, 2023) •GPT: Analyzes language data, latest popular model (Baidoo-Anu & Ansah, 2023)
Emergence of ChatGPT:	•November 2022: Free, open-access GAI tool •Adoption in education and various sectors (Dwivedi et al., 2023; Kocoń et al., 2023; Liu et al., 2023; Lund & Wang, 2023)
Applications in Education:	•Integrated for better learning experiences (Baidoo-Anu & Ansah, 2023; Zhai et al., 2021; Rudolph et al., 2023) •Immediate, personalized feedback aids writing assistance (Geng & Razali, 2020; Ippolito et al., 2022; Liu et al., 2023; Rudolph et al., 2023)
Formative Feedback & Self-Regulation:	•GAI generates formative feedback, enhances self-regulation (Afzaal et al., 2021)
Student Preferences & Peer Feedback:	•Students prefer AI-generated feedback for clarity (Escalante et al., 2023) •GAI facilitates peer feedback, suggests improvements (Darvishi et al., 2022)
Diverse Applications:	•Automated essay grading, language translation (Baidoo-Anu & Ansah, 2023) •GAI as a partner for language skills practice (Bin-Hady et al., 2023)
Subsequent Analysis:	•GAI used for analysis of real students' comments on learning (Shaik et al., 2022)

Adoption of ChatGPT in Education - Considerations and Perceptual Factors

- Adoption of new technologies is a complex process examined by various theoretical models.
- Roger’s (2014) diffusion of innovation theory emphasizes individual awareness of technology functionality.

Technology Acceptance Models:

- TAM, UTAUT, and extended versions link willingness to use technology with perceived potential to improve performance (Lai, 2017).

Limitations and Risks Analysis:

- Analysis of limitations and risks is crucial for adopting new and complex technology (Al Zumor et al., 2013; Lapointe & Rivard, 2005; Sabah, 2016).
- Bauer's theory of perceived risk (1960) indicates that increased perceived risk can prompt behavioral changes towards precautionary measures.

Perceived Risk and Adoption:

- Chan et al. (2023) show a positive association between perceived risk of COVID-19 and students’ online learning adoption.

ChatGPT Limitations:

- Quality of generated text influenced by input data and biased algorithms (Baidoo-Anu & Ansah, 2023; Lo, 2023; Wang, 2023).
- Concerns about potential overdependence hindering students' communication, problem-solving, and critical thinking skills (Kasneci et al., 2023; Mogavi et al., 2023; Yu, 2023).

Varied Views on AI in the Classroom:

- Differing perspectives on the application and degree of AI in education (Dwivedi, 2023; Lund, 2023; Zhang & Aslan, 2021).

Research Gap:

- Previous studies focus on students' perceived benefits with less attention to limitations and risks.
- Little agreement on the relationship between these factors and the willingness to use ChatGPT for teaching and learning.

Aim of Current Research:

- Determine perceptual factors associated with the intention to implement ChatGPT in future teaching and learning practices.

Intention to Use Technology in Education

- **Perceived Usefulness:**
  - Key factor influencing the intention to use technology in education (Granić & Marangunić, 2019).
  - Teo & Zhou (2014): Perceived potential and attitude significantly correlated with higher education students' intention to use new technology.
- **Perceived Usefulness for Teachers and Students:**
  - Luik & Taimalu (2021) found perceived usefulness of technology significantly related to teachers' intention to use it in the future.
- **Technology-Specific Examples:**
  - Students perceiving Moodle or LMS as useful were more likely to use it (Panergayo, 2021; Teo et al., 2019).
  - Positive relationship between perceived usefulness of MOOCs and students’ intention to continue studying (Daneji et al., 2019).

Consideration of Limitations:

- Users assess both benefits and limitations of new technology.
- Limitations can influence intentions to use (Al Zumor et al., 2013; Sabah, 2016).

Limitations in Technology Adoption:

- Mobile technology limitations acted as a barrier to subsequent participation in m-learning (Sabah, 2016).
- Technical problems and system complexity in Blended Learning Environment highlighted as limitations, but did not hinder adoption (Al Zumor et al., 2013).

Perceived Risk and Resistance:

- Decision to adopt new technology linked to subjective perceptions of risk, leading to resistance from teachers (Howard, 2013).
- Chan et al. (2023): Perceived risk of COVID-19 positively associated with students' online learning adoption.

AI Integration:

- Emerging trend of integrating AI into learning stimulates research on perceptions.
- Previous studies examine potential benefits, limitations, and risks with differing conclusions.

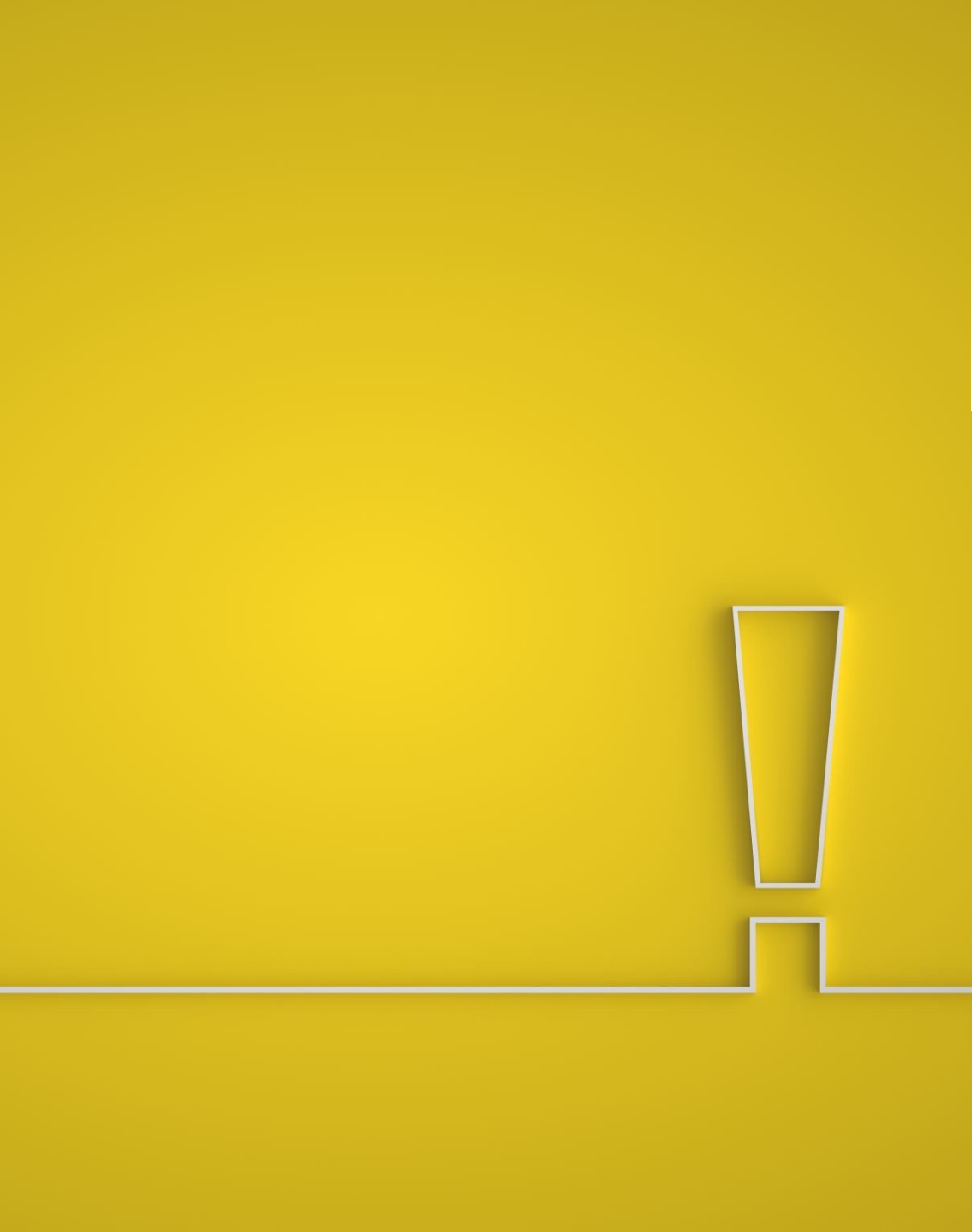
Perceptions of AI in Education

- **Potential Benefits of AI in Knowledge Sharing:**
  - Al-Emran et al. (2023): Positive perception of potential benefits affects chatbot (AI) use for knowledge sharing.
- **Improvement in Performance and Learning Attitude:**
  - Lee et al. (2022): Chatbot usage may improve students' performance and learning attitude.
- **Positive Correlation with Performance Expectancy:**
  - An et al. (2023): Performance expectancy positively correlated with teachers’ intention to use AI in the classroom.

- **Perceived Value of Generative AI and Intention to Use:**
  - Chan & Zhou (2023); Strzelecki (2023): Positive correlation between perceived value of generative AI and students' intention to use.
- **Controversial Findings:**
  - Shaengchart et al. (2023): Some authors argue that perceived benefits have no relationship with the intention to use ChatGPT.
  - Perceived benefits may play a role in technology adoption in general, but not necessarily in individual students' decision to use chatGPT in learning.
- **Multifaceted Attitudes of Early Adopters:**
  - Mogavi et al. (2023): Early adopters' attitudes to chatGPT in education are multifaceted, considering both advantages and limitations.

Perceptions of AI Limitations in Education

- **Generative AI Limitations:**
  - Quality and quantity of training data significantly influence performance (Baidoo-Anu & Ansah, 2023).
  - Issues include factual inaccuracies, bias, and a lack of contextual understanding (Elbanna & Armstrong, 2023; Wang, 2023).
  - ChatGPT may generate fake information, such as bibliographic citations (Lo, 2023).
- **Student Perception and Optimism:**
  - Shoufan (2023): Students are aware of ChatGPT limitations (e.g., inaccurate answers) but remain optimistic about its future improvement.



- **Informed Students Imposing Constraints:**
  - Famaye et al. (2023): Students well-informed about AI, including its limitations, impose constraints on usage despite general optimism.
- **Concerns and Willingness to Use:**
  - Awareness of AI limitations may be positively related to intentions to use (Shoufan, 2023).
  - However, concerns about biased AI algorithms and privacy issues negatively correlate with willingness to implement technology (Horowitz & Kahn, 2021; Wu et al., 2022).
- **Complex Relationship:**
  - Individuals may acknowledge limitations while remaining optimistic about future improvements.
  - Awareness of certain limitations may lead to constraints on usage.

Perceptions of AI Risks in Education

- **Technology Resistance Decision Factors:**
  - Individuals decide to adopt new technology based on perceived benefits and risks (Lapointe & Rivard, 2005).
- **Examples from Other Technologies:**
  - Perceived risks influenced decisions to adopt mobile technology and electric vehicles (Featherman et al., 2021; Naicker & Van Der Merwe, 2018).
  - In cloud computing, risks were significantly associated with user trust, impacting technology adoption (Ho et al., 2017).
- **Student Perception of ChatGPT:**
  - Famaye et al. (2023): Despite positive perceptions, students express concerns about ChatGPT risks.
  - Optimistic students are more likely to recommend developing tools for responsible technology utilization.

- **Minimal Perceived Risk and Successful Adoption:**
  - Abdaljaleel et al. (2023): Minimal perceived risk associated with successful ChatGPT adoption among students.
- **Negative Correlation with Willingness to Use AI:**
  - Wu et al. (2022): Perceived risks (functional, psychological, social) negatively correlated with students' willingness to utilize AI-powered learning environments.
- **Impact on AI-Based Chatbots:**
  - Al-Emran et al. (2023): Perceived threats and risks from generative AI negatively impact the use of AI-based chatbots for knowledge sharing.
- **Worries about Overdependence:**
  - Early adopters express concerns about potential overdependence on AI hindering students' development of communication, problem-solving, and critical thinking skills (Kasneci et al., 2023; Mogavi et al., 2023; Yu, 2023).

Objective of the Study:

- Investigate the relationship between students' perceptions of generative AI, specifically chatGPT, and their willingness to use it in future learning processes.

Previous Research Findings:

- Generative AI, like chatGPT, has the potential to enhance students' educational experience and performance.

Current Study Methodology:

- Conducted a survey involving 366 students from universities in the United Arab Emirates.

Hypotheses Proposed:

- **H1:** Positive correlation exists between students' perception of chatGPT advantages and their intention to use it in the future.
- **H2:** Negative correlation exists between students' perception of chatGPT limitations and their intention to use it in the future.
- **H3:** Negative correlation exists between students' perception of chatGPT risks and their intention to use it in the future.

Key Aspects Examined:

- Students' perception of chatGPT advantages, limitations, and risks.

Geographical Focus:

- Survey conducted among students in United Arab Emirates universities.

Reference to Existing Literature:

- Previous research supports the potential benefits of generative AI in education, prompting the investigation into students' perceptions.

Characteristic	n	%
Gender		
• Male	48	13.1
• Female	318	86.9
Age		
• 18-23 years old	267	72.9
• 24-29 years old	73	20
• 30 years old and more	26	7.1
Type of educational institution		
• governmental	280	76.5
• private	86	23.5
Academic level		
Bachelor	308	84.2
Master	41	11.2
Doctoral	17	4.6
Field of study		
Education	113	30.9
Humanities and Social Sciences	86	23.5
Business	49	13.4
Engineering	38	10.4
Science	28	7.6
Other	52	14.2

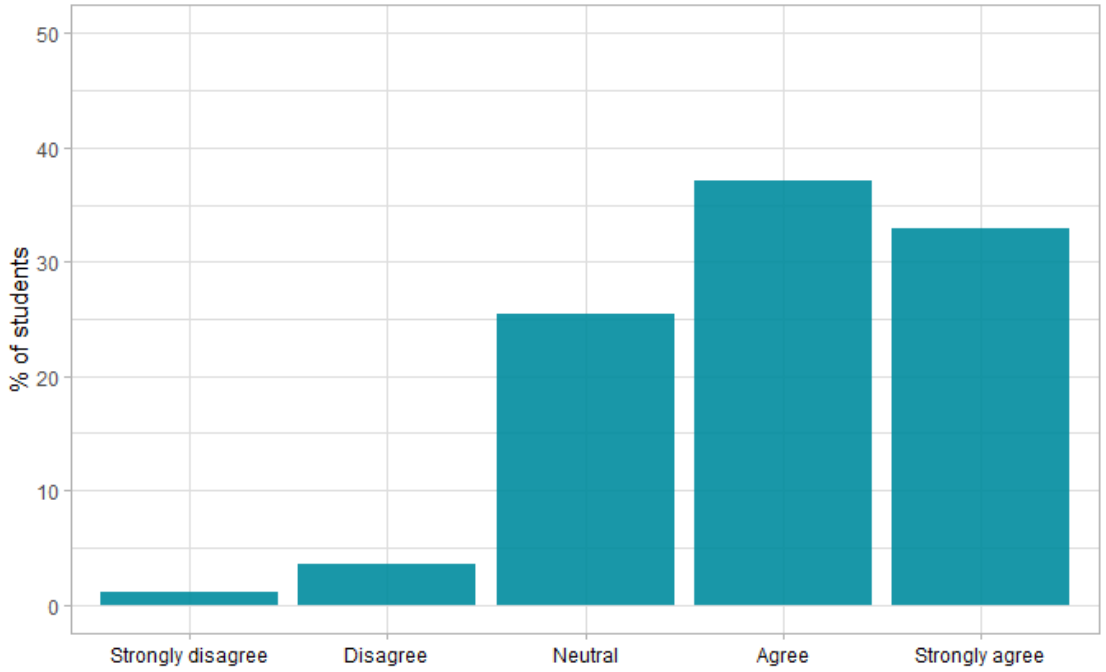
Sample characteristics

Results

Descriptive statistics

Simple statistical analysis was used to describe the dependent variables used in the present study. According to Graph 1, most students intend to use chatGPT in the future. Also, the majority of them tend to believe that students need to master this tool for their future career.

Graph 1. *Distribution of students' answers by dependent variable " I envision integrating generative AI technologies like ChatGPT into my teaching and learning practices in the future in both Arabic and English languages"*

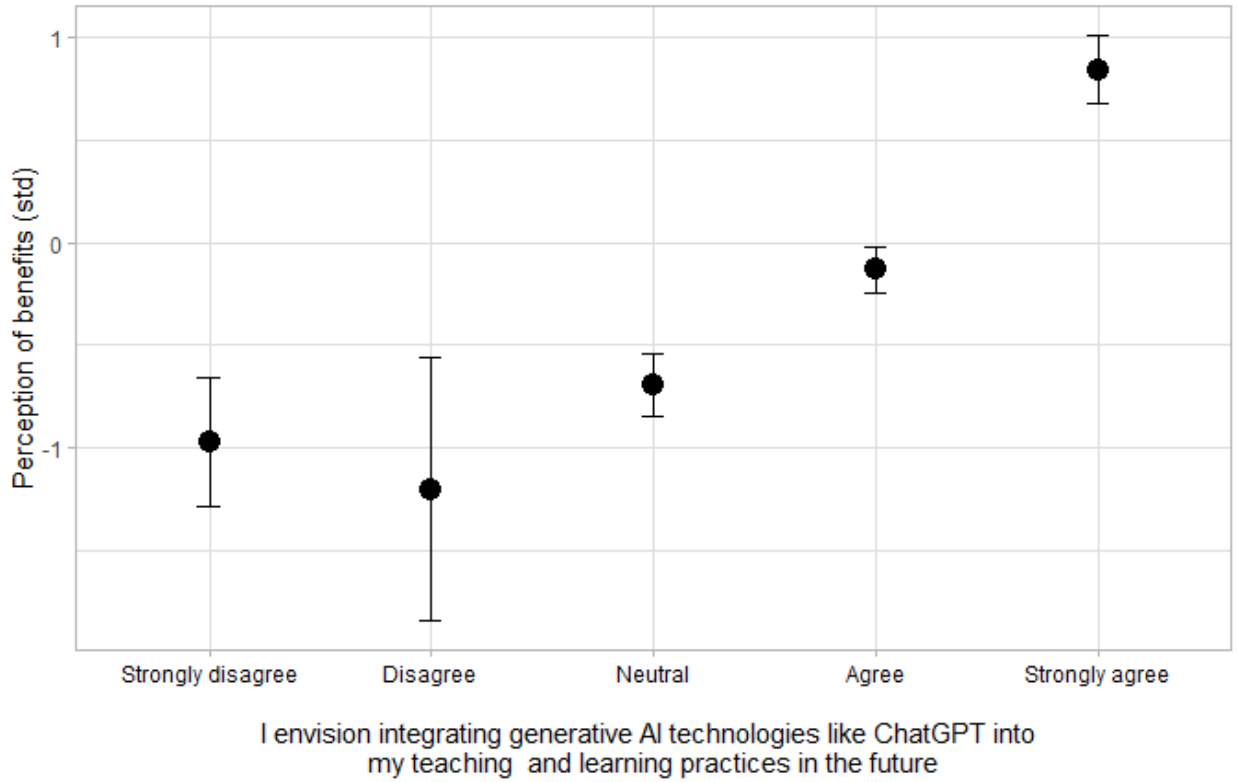


Overall, respondents claim a relatively high level of awareness of the benefits, limitations and risks of using ChatGPT.

Perception of chatGPT benefits

The results show that there is a significant difference in the mean scores for perceived benefits of chatGPT for groups that were 'Neutral', 'Agree' and 'Strongly agree' to use chatGPT in the future ($p<0.01$ for all cases) (Graph 2). Moreover, the tendency of positive linear relationship was observed: the more strongly students agree that they intend to use chatGPT in the future, the greater their knowledge of chatGPT potential benefits.

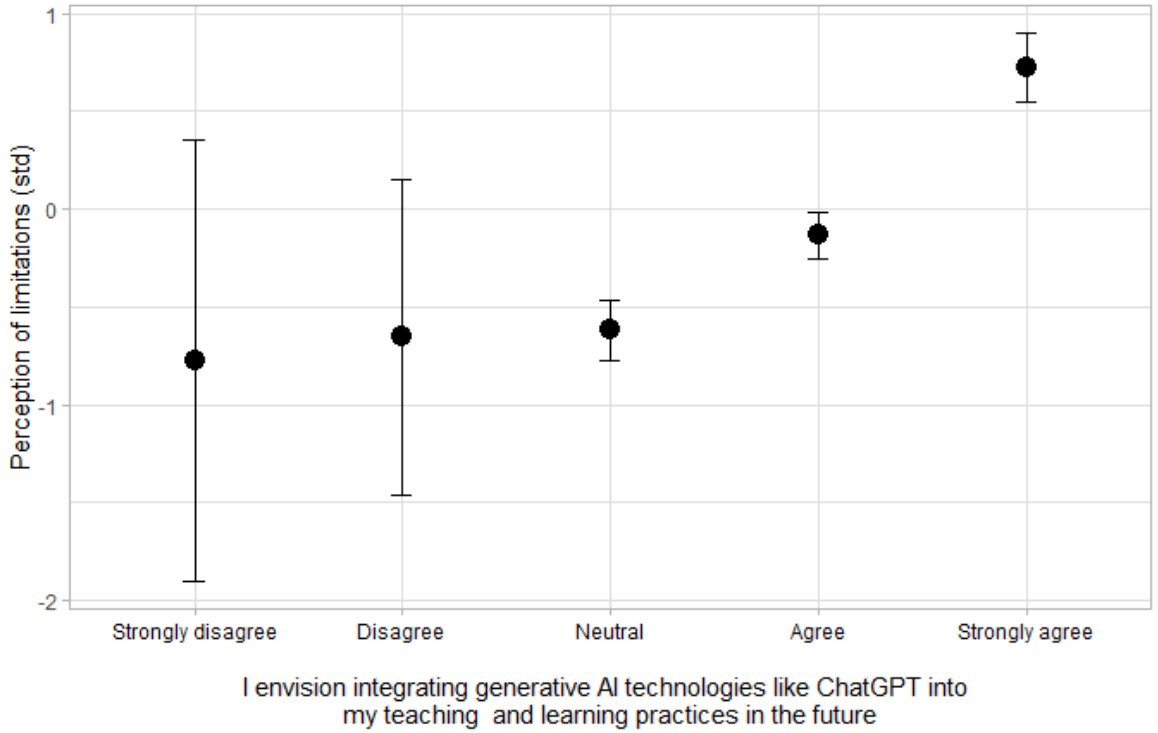
Graph 2. Means and 95% confidence intervals for *students perception of chatGPT benefits by their intention to use AI*



Perception of ChatGPT limitations

The results for the relationship between Perception of ChatGPT limitations and respondents' intention to use it in the future are presented in Graph 3. There is a significant difference in the means for perceived chatGPT limitations for groups whose intention to use this instrument vary from neutral to total agreement. Among these groups the higher students' awareness of ChatGPT limitations, the more they plan to use chatGPT in the future.

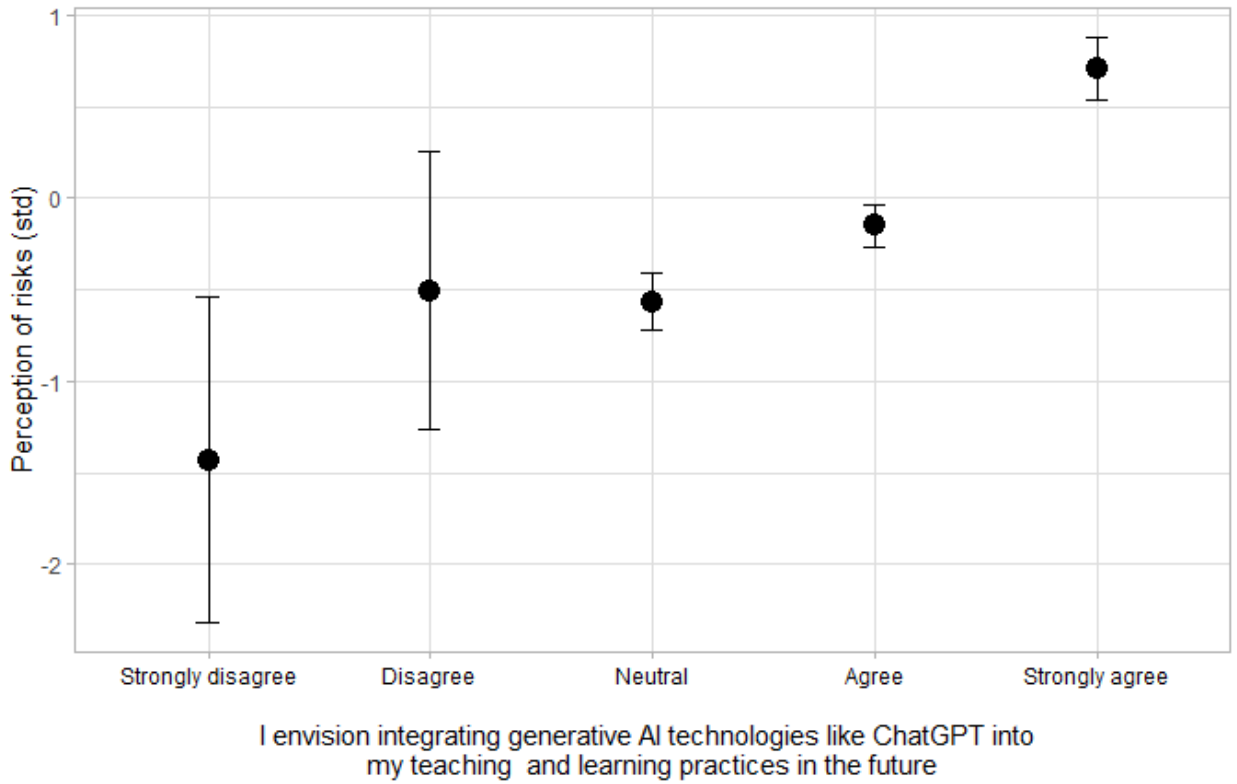
Graph 3. Means and 95% confidence intervals for students Perception of ChatGPT limitations by their intention to use AI



Perception of the risks of using chatGPT

Similar relationship was discovered between the intention to use chatGPT and the perception of its risks (Graph 4). Differences in average perception of risks were significant for groups demonstrating a positive attitude to chatGPT (from neutral to total agreement to use it in the future). The more respondents were aware of the potential risks of using the tool, the more likely they were to use it in the future.

Graph 4. Means and 95% confidence intervals for students Perception of chatGPT risks by their intention to use



Discussion

- **Overall Awareness:**
  - Respondents exhibit a high level of awareness regarding the benefits, limitations, and risks associated with using ChatGPT.
- **Correlation with Intentions:**
  - Positive correlation observed between students' desire to use ChatGPT and their perception of its benefits, limitations, and risks.
- **Confirmation of Hypotheses:**
  - All three hypotheses proposed in the study were confirmed, indicating a significant association between students' intention to use ChatGPT in the future and their perceptions.
- **Diffusion of Innovation Theory:**
  - Findings align with Roger’s (2014) diffusion of innovation theory, highlighting that a strong awareness of a new technology is a crucial factor in future adoption decisions.

Perceived Usefulness:	• Results indicate that the intention to use ChatGPT is associated with the perception of its potential benefits, consistent with Granić & Marangunić (2019) and the importance of perceived usefulness in technology adoption.
Technology Adoption in Education:	• Similar conclusions drawn from studies on the integration of technologies like Moodle, LMS, or MOOC into the educational process (Daneji et al., 2019; Panergayo, 2021; Teo et al., 2019).
Support for Previous Findings:	• Current research supports previous studies on the relationship between perceived usefulness of chatbots and generative AI and students' willingness to use these tools (Al-Emran et al., 2023; Chan & Zhou, 2023).
Early Adopters' Perception:	• According to Mogavi et al. (2023), early adopters of ChatGPT typically demonstrate a comprehensive perception of both its advantages and disadvantages.

- Positive Correlation:
  - The current research reveals a positive correlation between awareness of limitations and the intention to use ChatGPT in the future.
- Contrast with Previous Studies:
  - This finding contrasts with existing research, which often considers disadvantages of new technologies, including generative AI, as barriers to adoption.
- Barriers to Adoption:
  - Previous studies (Al Zumor et al., 2013; Horowitz & Kahn, 2021; Sabah, 2016; Wu et al., 2022) have identified concerns about biased algorithms and privacy issues as barriers to the adoption of new technologies.
- Concerns and Refusal:
  - Studies (Horowitz & Kahn, 2021; Wu et al., 2022) suggest that concerns about technical limitations of AI-assisted learning environments may lead to a decreased intention to use the technology in the future or recommend it to others.

Impact of Awareness of Limitations:	Students with a deep awareness of limitations may restrict the usage of a new tool despite general optimism about it (Famaye et al., 2023).
Constraints Not Always Barriers:	Despite concerns about technical issues and complexity, Al Zumor et al. (2013) found that students demonstrated readiness to use a Blended Learning Environment.
Optimism Despite Limitations:	Previous research on ChatGPT showed that students, despite being aware of its limitations, remained optimistic and hoped for improvements in the near future (Shoufan, 2023).

- **Positive Correlation with Risks:**
  - Contrary to expectations, the study found a positive correlation between deep awareness of risks associated with ChatGPT and the willingness to use it in the future.
- **Optimism Despite Risks:**
  - Famaye et al. (2023) showed that even if students express concerns about ChatGPT risks, they tend to perceive the tool positively, demonstrating optimism, and are more likely to recommend further development for responsible technology utilization.
- **Contrast with Perceived Risk Theory:**
  - This finding contrasts with Bauer's theory of perceived risk (1960), which suggests that higher perceived risk should lead to more cautious behavior.
- **Teacher Resistance to Risks:**
  - In the context of technology integration in education, teachers may resist implementing new technology due to personal beliefs about potential risks, as noted by Howard (2013).

- **Minimal Perceived Risk for Successful Adoption:**
  - For students, a minimal perceived level of risk is associated with successful ChatGPT adoption or willingness to use AI-powered learning environments (Abdaljaleel et al., 2023; Wu et al., 2022).
- **Negative Association with AI-Based Chatbots:**
  - Al-Emran et al. (2023) found that concerns about threats and risks of AI-based chatbots may be negatively associated with subsequent use for knowledge sharing.
- **Importance of Informing about Limitations and Risks:**
  - The study emphasizes the importance of informing individuals about the limitations and risks of ChatGPT, in addition to its advantages, as these factors play a crucial role in making positive decisions regarding its further usage.

Conclusion

- Research Gap Addressed:
  - The paper addresses a gap in research on chatGPT adoption in the learning process by investigating the association between intention to use the technology and perception of its different aspects.
- Research Aim:
  - Aimed to explore the relationships between students' perception of potential benefits, limitations, and risks of chatGPT and their willingness to use this technology for learning in the future.
- Relationship Analysis:
  - Found a positive correlation between the perception of potential benefits of chatGPT and the intention to use it in the future, supporting previous literature emphasizing technology's potential to enhance performance (Lai, 2017).
  - Indicated that students with a deep understanding of the risks and limitations are also likely to use ChatGPT in the future for learning.

- Empirical Contribution:
  - The study contributes empirically to understanding factors interconnected with students' willingness to use chatGPT in the future.
- Practical Recommendations:
  - Practical suggestions for instructors to motivate students to use chatGPT in the learning process.
    - Inform students about the potential advantages of chatGPT for performance improvement and the learning process.
    - Make students more informed about the current limitations of chatGPT and the associated risks.
    - These recommendations are particularly relevant for students in pedagogical programs who may become teachers and implement chatGPT in their professional activities.
- Relevance for Teacher Adoption:
  - Suggested steps may facilitate the adoption of chatGPT among teachers and contribute to the easier integration of this technology into the educational process, given that teachers often play a crucial role in introducing new technologies (Chan & Zhou, 2023).

Thank you for listening

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Collaborating for sustainable impact: partnerships across the Asia Pacific

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