

## Factors Influencing the Adoption of AI Tools by K12 Teachers in Cyprus

A pilot study

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Organisers:



Under the auspices of:



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# Purpose of the Research - Research Questions

## Purpose

- Examine the factors influencing the adoption and use of AI tools by Cypriot Primary School teachers within the TAM framework and to determine its impact on them.

## Research Questions

- What factors influence the adoption of AI tools by Cypriot teachers?
- What impact does the use of AI tools have on Cypriot teachers?

# Methodology

## Literature Review

**Systematic** search of scientific databases, google scholar and google (keywords)

**Wohlin's, (2014) snowballing**  
technique

## Research Method

Qualitative Research

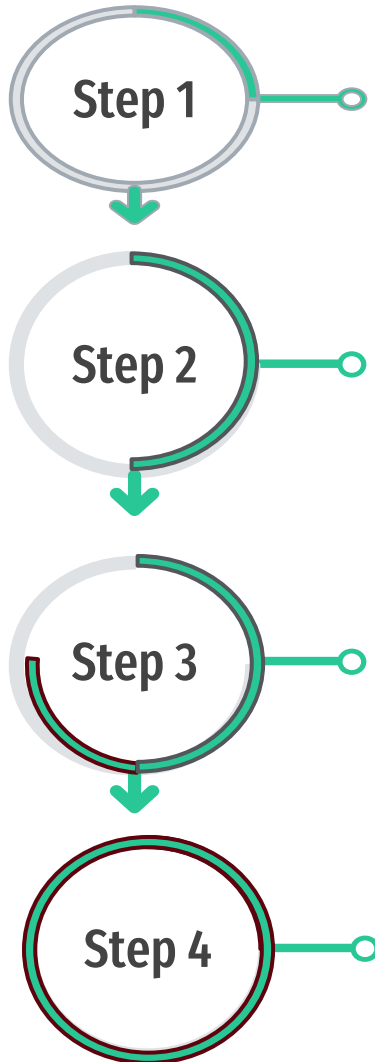
### Participants

1 Teacher

### Sampling

Purposive and convenience  
(March-May- 2024)

# Introduction



- Artificial Intelligence in Education (AIEd)... in use since the 1970s (Guan et al., 2020)

- COVID-19 pandemic - **mark point** for significant increase in the use of AI in education (Chen et al., 2020)

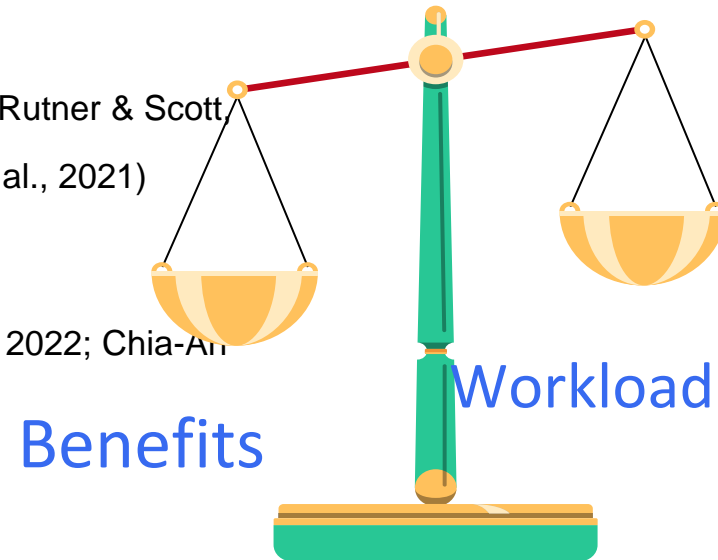
- Previous to Covid-19 Research on AI

- Within and after Covid-19 Research on AI (Benefits from implications of AI - challenges from implications of AI)

# Literature Review

## Practical Implications of AI tools- Benefits

- **Teaching/Organizational Assistants - Content Generators** (Bagir et al., 2022; Erümit & Çetin, 2020; Essel et al., 2022; Firat 2023; Gupta & Chen, 2022; Lu et al., 2021; Tlili et al., 2023)
- **Ideal for Personalised Learning- Adapting to Users Level** (Ekin, 2022; Fu et al., 2020; Li & Jeong, 2020; Mousavi et al., 2021; Rutner & Scott, 2022; Uzir et al., 2021; Vincent-Lancrin & Vlies, 2020)
- **Helpful - Automation of Tasks** (Cutumisu et al., 2019; Ferman et al., 2021; Okada et al., 2019; Rutner & Scott, 2022; Vij et al., 2020; Yang et al., 2019; Yang et al., 2021; Yuan et al., 2020; Zhang & Xu 2022; Zhuravlova et al., 2021)
- **Useful and Trustworthy Prediction Tools** (Chia-An Lee et al., 2021; Qian et al., 2021)
- **Useful for Assessment and Evaluation of Learning behaviours** (Bagunaid et al., 2022; Chia-An Lee et al., 2021)
- **Motivational for Engagement and Achievement** (Eunjyu Yu, 2023; Yang et al., 2023)
- **Easing instructors' responsibilities and weaknesses** (Bagir et al., 2022; Chen et al., 2020; Xu & Ouyang, 2022)
- **Promoting Critical Thinking, Academic Skills and Preparation for personal growth** (Hwang et al., 2020; Sulak, 2021)



# Literature Review

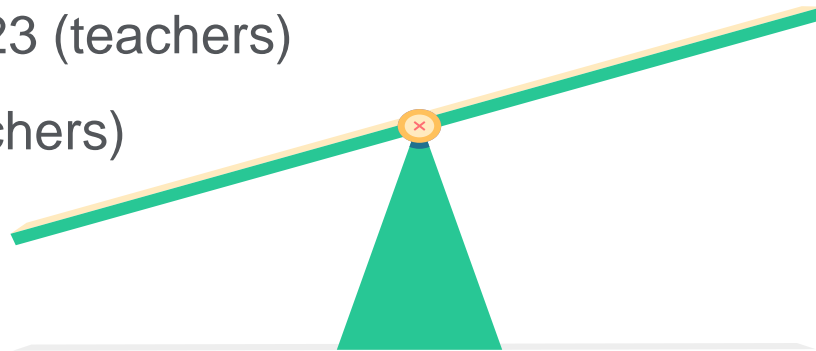
## Views- Beliefs of students and educators

### Research on Views **for** AI use

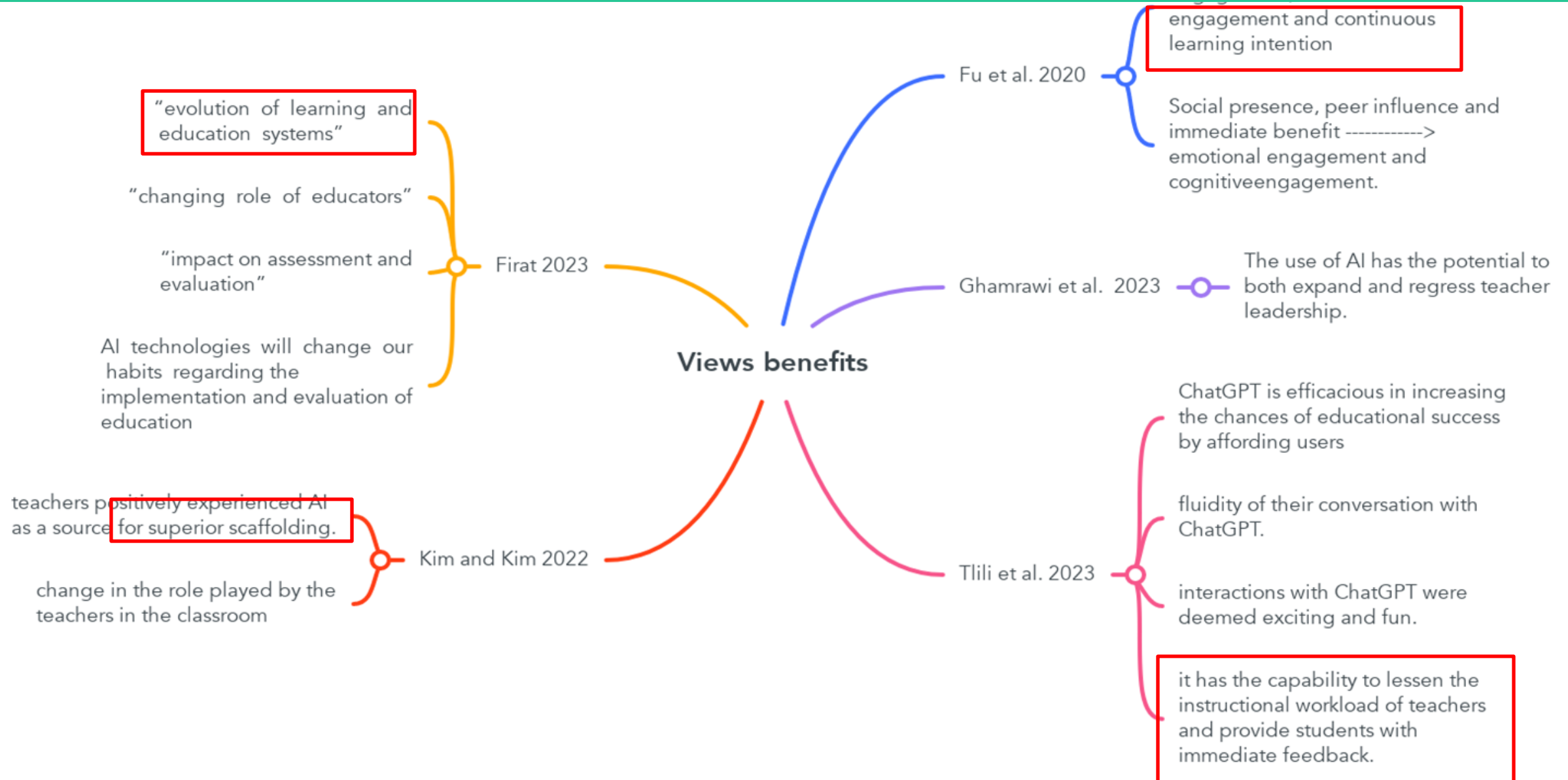
Kairu, 2020 (students)  
Bunting et al., 2021 (teachers)  
Chounta et al., 2022 (teachers)  
Pisica et al., 2023 (academics)  
Moorhouse & Kohnke, 2023 (teachers)  
Woodruff et al., 2023 (teachers)

### Research on Views **from** AI users

Fu et al., 2020 (teachers)  
Kim & Kim, 2022 (teachers)  
Ghamrawi et al., 2023 (teachers)  
Tlili et al., 2023 (ChatGPT users)  
Firat, 2023, (ChatGPT - teachers)



# Literature Review



# Literature Review

## Views and Practical Implications of AI tools- Challenges

- ChatGPT needs cautious prompting and cross referencing of the results - bias or fake information (Baidoo-Anu & Owusu Ansah, 2023; Firat, 2023; Tlili et al., 2023)
- Ethical concerns about plagiarism, cheating, validity (Crawford et al., 2023; Essel et al., 2022; Firat, 2023; Halaweh, 2023; Kim & Kim, 2022; Rudolph et al., 2023; Tlili et al., 2023; Willems, 2023)
- Fear of AI breeding of students laziness (Tlili et al., 2023)
- AI negatively impacting students creativity (Eunjyu Yu, 2023)
- Limited exposure to AI tools for ethnic minority students (Zhang & Xu, 2022)
- Lessening of autonomy, interaction and collaboration (Kim & Kim, 2022; Qian et al., 2021; Ghamrawi et al., 2023)
- Reliance on AI algorithms (Ghamrawi et al., 2023)
- Knowledge, technical items, content organization abilities, and cost (Chounta et al., 2022; Rutner & Scott, 2022)
- No emotional communication (Gupta & Chen, 2022)

# Literature Review

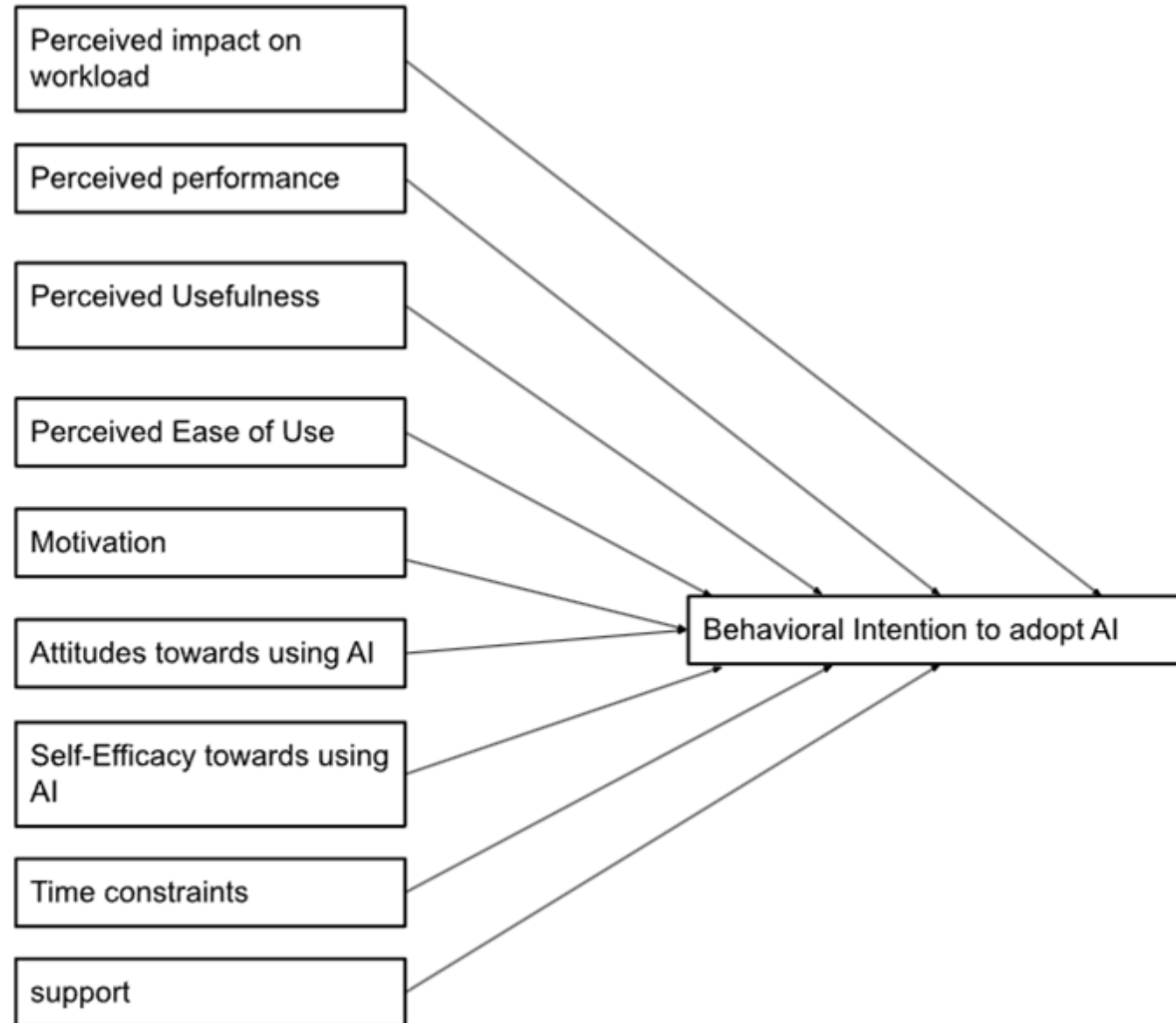
## Factors- Theoretical frameworks

Technology Acceptance Model (TAM) and TAM based	Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT based
Sánchez-Prieto et al., (2020)	
Wang et al., (2021)	
Chocarro et al., (2023)	
Nja et al., (2023)	
Algerafi et al., (2023)	
Ma & Lei, (2024)	
Samarescu et al., (2024)	Hidayat-ur-Rehman & Ibrahim, ( 2023 ) - UTAUT and Status Quo Bias (SQB) frameworks
Ofosu-Ampong, (2024)- components	

# Literature Review

Other
Gupta & Bhaskar, (2020) - Analytic Hierarchy Process (AHP)
Chai et al., (2020)- Theory of Reasoned Action (TRA)
Du & Gao, (2022) - Value-based adoption model (VAM)
Nazri et al., (2022)- Interpretation of the Technology-Organisation-Environment (TOE) Theory
Cukurova et al., (2023)- Four-dimensional framework
Lee et al., (2024)- “UNESCO ICT competency framework for teachers” 2023.
ShwedeH et al., (2024) - Socio-technological theory
Ayanwale et al., (2024)- Theory of planned behavior (Ajzen, 2020)
Bhaskar & Rana, (2024)/ Al-Mughairi & Bhaskar, (2024) - Interpretative phenomenological analysis (IPA)

# Literature Review - Theoretical /Conceptual Framework



# Results

**RQ. 1:** What are the factors influencing the adoption of AI tools by Cypriot teachers?

## Theme I

### Affordances

- Ease of use, Ease of Operation/Navigation and Overall Satisfaction
- Productivity, Efficiency, and Reliability

## Theme II

### Skills

- Training and Education
- Motivation and Organizational support

## Theme III

### Teachers Attitudes towards AI

- Teacher Attitudes

# Results

**RQ. 2:** What impact does the use of AI tools have on Cypriot teachers?



# Discussion

**RQ. 1:** What are the factors influencing the adoption of AI tools by Cypriot teachers?

## Theme I

### Affordances

#### Ease of use, Ease of operation, and Satisfaction

(Chocarro et al., 2023; Hao et al., 2021; Hidayat-ur-Rehman & Ibrahim, 2023; Kelly et al., 2023; Nja et al., 2023; Sánchez-Prieto et al., 2020; Wang et al., 2021)

#### Productivity, Efficiency, and Reliability

(Al-Mughairi & Bhaskar, 2024; Alrehaili & Alenezi, 2022, Bhaskar & Rana, 2024; Chocarro et al., 2023; Cukurova et al. 2023; Kelly et al., 2023; Ma & Lei, 2024; Y. Du & Gao, 2022)

## Theme II

### Skills

#### Training and Education

(Al-Mughairi & Bhaskar, 2024; Chai et al., 2020; Chou et al., 2022; Hidayat-ur-Rehman & Ibrahim, 2023; Lee et al., 2024; Ma & Lei, 2024)

#### Motivation - Supportive environment

Gupta & Bhaskar, 2020; Hao et al., 2021; Ismatullaev & Kim, 2024; Nazri et al., 2022; Ofosu-Ampong, 2024)

## Theme III

### Teachers attitudes

#### Teachers attitudes

(Ayanwale et al., 2024; Ismatullaev & Kim, 2024; Nja et al., 2023; Ofosu-Ampong, 2024; Sánchez-Prieto et al., 2020; Wang et al., 2021)

# Discussion

## RQ. 2: What impact does the use of AI tools have on Cypriot teachers?

### Theme I Feelings

#### Positive feelings and Satisfaction

(Agus Santoso et al., 2018; Antonenko & Abramowitz, 2023; Dutta, 2017; HMH Educator Confidence Report, 2023 ; Kaplan-Rakowski et al., 2023; Pérez et al., 2020; Roca et al., 2024; Tsivitanidou & Ioannou, 2021; Velandar et al., 2024)

### Theme II Workload Relief

#### Time Saving- Accomplishment- Motivation- Engagement- Ease of Administrative work

(Agus Santoso et al., 2018; Cukurova et al., 2023; Eunju Yu, 2023; Hamilton & Swanston, 2024; Hashem et al., 2024; HMH Educator Confidence Report, 2023; Pérez et al., 2020; Roca et al., 2024; Rutner & Scott, 2022; Tlili et al., 2023; Tsivitanidou & Ioannou, 2021; Yang et al., 2023)

### Theme III Concerns

#### Ethics- AI Literacy- Institutional Support- Cost

(Antonenko & Abramowitz, 2023; Chounta et al., 2022; Crawford et al., 2023; Essel et al., 2022; Firat, 2023; Halaweh, 2023; Kim & Kim, 2022; Rudolph et al., 2023; Rutner & Scott, 2022; Tlili et al., 2023; Tsivitanidou & Ioannou, 2021; Velandar et al., 2024; Wang et al., 2023; Willems, 2023 )

# Conclusion

## This study ...

- highlights the **potential benefits** of integrating AI tools in education
- emphasizes **crucial factors** when introducing AI tools in educational settings
- highlights the **importance of creating user-friendly** for **user satisfaction**
- reveals **tools' usefulness, reliability, and results**
- emphasizes the **need to incorporate professional development** programs
- highlights the **significant role of policymakers in providing ongoing support**
- shows that **motivation is crucial for Cypriot teachers** in adopting AI tools
- indicates that Cyprus' educational policymakers should **prioritize the well-being** of their teachers and **implement policies** that recognize and **address workload concerns** by using AI

# Suggestions for further research

- **Investigate** how the prolonged use of AI affects teacher well-being, job satisfaction, and potential burnout over an extended period.
- **Conduct** cross-cultural studies to shed light on the variations in AI tool utilization across educational settings and cultural contexts
- **Explore** the effectiveness of AI tools in different academic disciplines
- **Integrate** AI-related training programs and study their impact on their instructional practices
- **Investigate** the complex **relationship between AI tools** and student motivation, delving into ethical considerations, customization possibilities, and effective pedagogical integration promise to enrich the discourse on AI in education.

# Reflexions and Limitations

## Positives:

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- **Effective structured framework** and **analytical tools** - in navigating the complexities of data collection and analysis.
- **Appropriate and effective methods-** in capturing the intended data.
- **Results are addressing gaps** in the literature and offer **novel perspectives**, meaningful contributions to the academic and applied community

## Need to reconsider:

- **Reframe** my theoretical framework components (new literature)
- **Increase the engagement** of participants (get enough number and not to abandon the research) - give some motivation (material, education on the tools and ongoing support)
- **Cautious on the presentation of AI tools** to the participants on the first seminar -not to give them all the possibilities of the tools until they finish the TAP sessions.

# References

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available at: <https://docs.google.com/presentation/d/1L5gv3xyYUjemU1HRRaibzgPzYW9Tdk-A/edit?usp=sharing&ouid=109898253231005212363&rtpof=true&sd=true>

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# Thank you all for your attention!

Feel free to ask any questions also at

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