

Primary school teachers' beliefs on the use of Large Language Models in the Arts

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The present study aims to explore primary school teachers' beliefs regarding ChatGPT, in the arts field.

The Importance of Arts in Education

- Integration of arts into school education is essential for developing basic skills and achieving positive educational outcomes.
- Arts contribute to the development of creativity, imagination, teamwork, and critical thinking.
- Promotes a human-centered educational model, focusing on holistic development over a technocratic, grade-based approach.
- Arts education fosters emotional management, effective communication, collaboration, and self-awareness.

The Role of Artificial Intelligence in Education

- AI, particularly Large Language Models (LLMs), introduces new possibilities for creative engagement and language development.
- LLMs, like ChatGPT, enable innovative interactions, allowing students to explore creative processes in novel ways.
- AI tools can personalize education, enhance critical thinking, imagination, and creativity, and support both students and teachers.
- Potential benefits include increased student interest, improved reading and writing skills, and reduced teacher workload.



Potential Risks of AI in Education

- Risks include a potential decline in creativity, imagination, and critical thinking due to reliance on ready-made answers.
- Concerns about misinformation, ethical issues, and protection of personal data.
- LLMs provide responses based on a static database, which may lack up-to-date information.
- Critical need for careful integration of AI tools to avoid negative impacts on students' writing and communication abilities.



Teachers' Perspectives and the Need for Research


- Teachers play a crucial role in integrating AI tools like LLMs into education.
- A gap exists in research on teachers' perspectives, especially in arts and primary education.
- Understanding teachers' views is vital for effective AI integration and the development of targeted teacher training programs.
- Research can inform curriculum improvements and strategies for the safe and creative use of LLMs.



Teachers' Perspectives and the Need for Research

- AI tools, particularly LLMs, have the potential to transform education, especially in the arts.
- Proper understanding and integration of these tools can enhance creativity, critical thinking, and educational equity.
- Future research should focus on mapping teachers' perspectives and developing comprehensive training frameworks.
- Aim to balance the benefits of AI with the preservation of essential human-centered educational values.

Purpose – Research questions



Investigate the beliefs of primary school teachers who teach arts subjects (drama, literature, art, music) about the use of ChatGPT.

Address the gap in literature on teachers' views, with a focus on arts and primary education. Explore potential risks and benefits from teachers' perspectives, crucial for the safe and effective use of LLMs in young students' education.

Utilize Ajzen's (1991) Theory of Planned Behaviour to examine teachers' intentions and the factors influencing their use of LLMs in arts lessons.

Research Questions

Research Questions Framed by Ajzen's Theory of Planned Behaviour:

Behavioral Beliefs:

1. What are the beliefs of primary school arts teachers regarding the potential benefits and risks of ChatGPT pedagogically?

Normative Beliefs:

- 2. What are the beliefs of these teachers regarding the expected support or resistance from the educational community when using ChatGPT in arts education?

Control Beliefs:

- 3. What are the beliefs of these teachers regarding the expected facilitation or resistance when integrating ChatGPT into their classrooms?

Data collection and sample

Semi-structured Interviews: Conducted with 28 primary school teachers who teach art lessons.

- Open-ended questions based on Ajzen's (1991) Theory of Planned Behaviour, exploring subjective meanings from a phenomenological perspective.
- Conducted online from May to September 2023 via Zoom.

Sampling Process:

- Purposive Sampling: Online questionnaire to confirm familiarity with ChatGPT.
- Invitation: Affirmative respondents invited for interviews.



Data collection and sample

- Gender: 75% Female (N=21), 25% Male (N=7).
- Experience:
 - 1-5 years: 53.57% (N=15)
 - 6-15 years: 17.86% (N=5)
 - 16-25 years: 10.71% (N=3)
 - 25+ years: 17.86% (N=5)
- Teaching Roles:
 - Elementary Teachers: 50% (N=14)
 - Kindergarten Teachers: 28.57% (N=8)
 - English Teachers: 10.71% (N=3)
 - Specialized Teacher in Art/Drama/PE: 3.57% (N=1)
- Employment Status:
 - Substitutes: 46.43% (N=13)
 - Appointed Teachers: 42.86% (N=12)
 - Hourly Employees: 10.71% (N=3)
- Educational Background:
 - Postgraduate Degree: 53.57% (N=15)
 - Bachelor's Degree: 35.71% (N=10)
 - Second Undergraduate Degree: 7.14% (N=2)
 - Doctoral Degree: 3.57% (N=1)



Data analysis

- Interview Duration & Recording:

- Average of 20 minutes per interview, recorded via Zoom with consent.
- Transcription conducted using Microsoft Word, finalized after the last interview.

- Transcription & Initial Analysis:

- Transcripts reviewed and data reduced through coding.
- Unit of Analysis: Word or phrase conveying specific meaning or idea.

- Thematic Analysis:

- Codes grouped into broader themes aligned with Ajzen's (1991) Theory of Planned Behaviour.
- Analysis focused on the three research questions derived from the theory.

- Results Presentation:

- Quantitative approach using frequency (N) and relative frequency (N%).

Results

Results

Categories	Codes	N	N%
1. Positive outcomes	Help with research - projects	28	15,82
	Teacher's assistant	25	14,12
	Increasing interest - involvement	25	14,12
	Enhancing creativity	12	6,78
	Technological literacy	9	5,08
	Improving writing skills	7	3,95
	Enhancing critical thinking	1	0,56
Total		107	60,45
		177	100

Positive outcomes

1

Help with research – projects

2

Teacher's assistant

3

Increasing interest

4

Enhancing creativity

Results

Categories	Codes	N	N%
2. Negative outcomes	Copying	22	12,43
	Decreasing human contact	11	6,21
	Decreasing critical thinking	9	5,08
	Decreasing creativity	6	3,39
	Reducing interest	5	2,82
	Personal data	5	2,82
	Lack of personalization	1	0,56
	Addiction - dependence	1	0,56
Total		70	39,55
		177	100

Negative outcomes

Copying

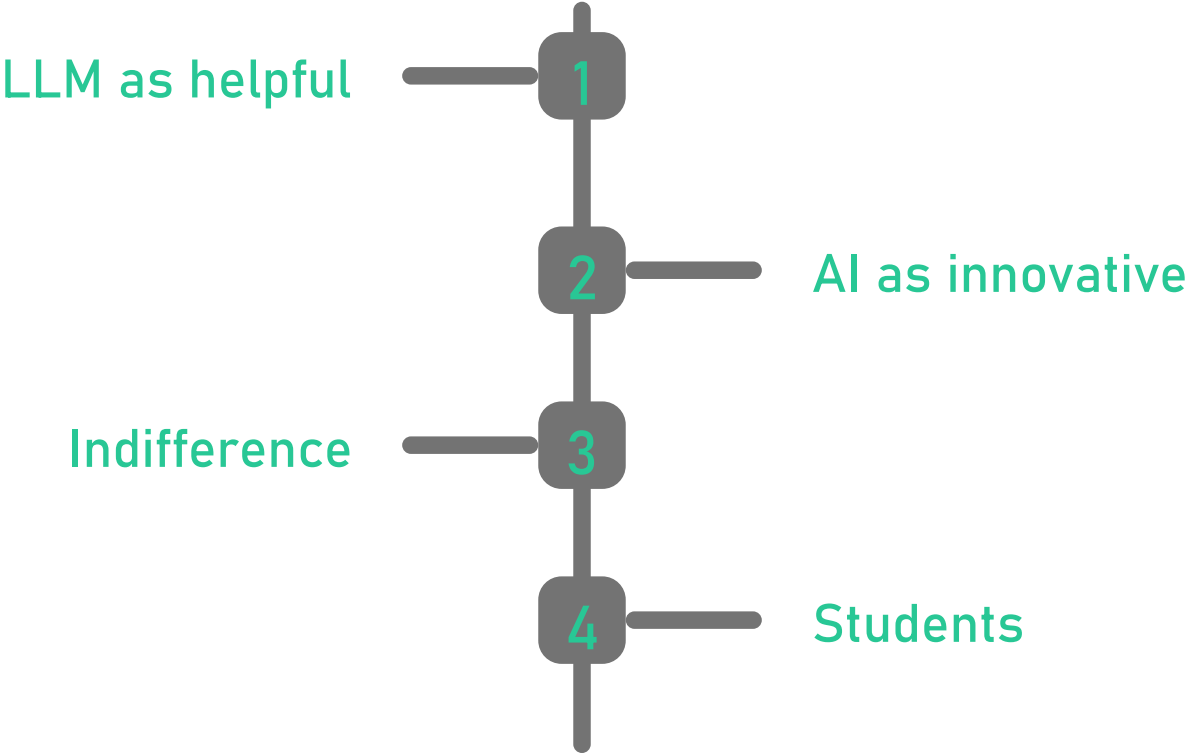
Decreasing
human contact

Decreasing
critical thinking

Results

Support

Categories	Codes	N	N%
1. Support from others	Those who consider LLM as helpful	21	15,56
	Those who consider the AI as innovative	18	13,33
	Indifference to the opinion of others	17	12,59
	Students' enthusiasm	10	7,41
Total		66	48,89
		135	100



Results

Rejection

Categories	Codes	N	N%
2. Rejection from others	Rejection due to lack of knowledge	22	16,30
	Suspicion about the AI	22	16,30
	Personal fear of conflict	10	7,41
	Fear of replacement	10	7,41
	Formalisation of creative thinking	3	2,22
	Rejection due to difficulties in use	1	0,74
	Rejection as an "easy solution"	1	0,74
Total		69	51,11
		135	100

Lack of knowledge

1

2

Suspicion

Fear of conflict

3

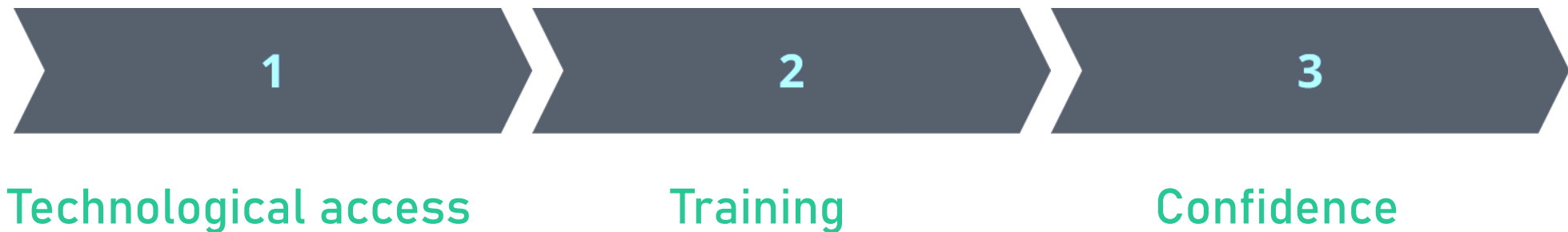
4

Replacement

Results

Categories	Codes	N	N%
1. Facilities	Technological access	31	19,62
	Institutional support - training	25	15,82
	Personal confidence	22	13,92
	Community support	5	3,16
	Student support	1	0,63
Total		84	53,16
		158	100

Facilities



Results

Codes	N	N%
Lack of experience - knowledge	43	27,22
Lack of confidence in AI capabilities	16	10,13
Limited technological access	15	9,49
Total	74	46,84
	158	100

Barriers

Lack of experience – knowledge

Lack of confidence in AI capabilities

Limited technological access

Discussion – conclusion

The present study attempted to explore primary education teachers' beliefs regarding the pedagogical use of ChatGPT based on Ajzen's (1991) Theory of Planned Behaviour. The first research question focused on teachers' behavioral beliefs, which are their beliefs about the expected positive and negative outcomes of using ChatGPT.



Behavioral Beliefs

Positive Outcomes Identified by Teachers

- Support for Students: ChatGPT can aid in researching and creating artistic projects.
- Support for Teachers: ChatGPT can enhance lesson organization, assessment, and educational material production.
- Student Engagement: Increased interest and participation in art lessons.
- Creativity Boost: Inspiration and original ideas to enhance creativity.
- Skill Development: Improvement in students' technological literacy and artistic skills.



Behavioral Beliefs

Concerns and Risks Identified by Teachers

- Copying Risk: Potential for students to replicate artwork, reducing originality.
- Human Interaction: Fear of diminished teacher-student collaboration and interaction.
- Creativity and Critical Thinking: Concerns over reduced creativity, imagination, and critical thinking skills.
- Long-term Engagement: Risk of decreased long-term interest in art lessons.
- Privacy and Personalization: Concerns over privacy issues and support for students with learning difficulties.
- Dependency on Technology: Risk of over-reliance on AI tools.



Normative Beliefs – Support and Resistance

Expected Support:

- From those who see LLMs as valuable tools and support AI innovation in education.
- Teachers prioritize support from enthusiastic students.

Expected Resistance:

- From those lacking information or mistrusting AI in education.
- Concerns about replacing the teacher's role and limiting creativity.
- Fears of AI formalizing education and reducing teaching efforts.



Control beliefs

Facilitators:


- Adequate technological equipment and training.
- Institutional support from management and the Ministry of Education.
- Teachers' self-confidence in using new technologies.
- Support from the educational community and students.

Barriers:

- Lack of knowledge and experience in ChatGPT use.
- Distrust in AI's potential benefits.
- Inadequate technological infrastructure in schools.



Discussion and recommendations

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- **Positive Attitude:** Teachers generally have a positive view of ChatGPT in arts education, emphasizing the need to mitigate risks.
 - **Training and Support:** There is a strong need for targeted training programs and institutional support to overcome resistance and ensure safe and effective ChatGPT integration.
 - **Focus on Risks:** Addressing potential risks, such as copying and reduced human interaction, is essential.
 - **Framework Development:** Establishing a regulatory framework for AI use in education can help in promoting safe and creative AI integration into the arts curriculum.

Theoretical and practical implications



The present research fills an important gap in the literature and offers a particular connection between LLM and ChatGPT in particular and the arts and primary education.

Furthermore, on a practical perspective, the research findings can guide the design and development of targeted art education training programs for primary school teachers. In addition, the research can lead to the improvement and development of strategies that will promote a safe and creative use of ChatGPT in the educational process, facilitating its use as an assistive educational tool for teachers and students.

Limitations and Suggestions

The present research was limited to investigating the beliefs of a sample of primary school teachers (N=28) who teach art classes in Greece, through the qualitative analysis of semi-structured interviews conducted between May and September 2023. This study could be expanded by conducting it over a longer period and including a larger sample. Additionally, it could be extended to a comparative study of the beliefs of teachers in primary and secondary education or the beliefs of teachers in other countries. Finally, considering that ChatGPT receive continuous updates, it is likely that teachers' beliefs are also evolving, a finding that encourages regular review of the results.

Thank you!

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