# PRAGMATISM, ANXIETY, AND ACCOUNTABILITY: UNCOVERING PUBLIC DISCOURSE ON AI ETHICS IN EDUCATION FROM TWITTER (X) DATA

## CAPWIC 2026

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# MOTIVATION: WHY DOES THIS MATTER?

## AI is everywhere

Generative AI tools such as ChatGPT are transforming teaching, learning, and assessment at an unprecedented pace.

## Public Opinion Shapes Policy

Generative AI tools such as ChatGPT are transforming teaching, learning, and assessment at an unprecedented pace.

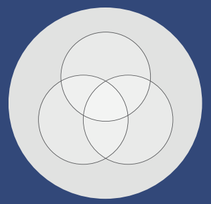
## The Gap we will fill

Generative AI tools such as ChatGPT are transforming teaching, learning, and assessment at an unprecedented pace.

# RESEARCH QUESTIONS

What sentiment patterns emerge in Twitter discussions about AI ethics in education?

How do different themes vary in prominence and engagement within Twitter conversations about AI ethics in education?



How do Twitter discussions compare with narratives in mainstream media, educator communities, and policy documents regarding AI adoption in education?

# DATA & METHODS

## PLATFORM
Twitter Academic Research API

## PERIOD
Jan 2019 – Nov 2024

## SCOPE
English-language, US-based

## CORPUS
14,201 tweets

## KEYWORD
AI, ChatGPT, LLM, education, ethics, teaching, learning

# ANALYSIS METHODS

## Sentiment Analysis

1 **Collect**
Collect tweets from 2019-2024

→

2 **Clean**
Clean & Filter Data

→

3 **Label**
Human-annotate a sample of tweets

→

4 **Analyze**
Analyze sentiment over the study

→

5 **Train**
Train SetFit Model

## Topic Modeling: BERTopic pipeline

**Embeddings**
SentenceTransformer All-MiniLM-L6-V2

→

**Dimension Reduction**
UMAP

→

**Text Clustering**
HDBSCAN

↓

**Representation**
KeyBERT · MMR · LLaMA

→

**Topic Representation**
BERTopic

→

**Outlier reassign**
c-tf-idf strategy

→

**Topic Reduction**
BERTopic built-in

# RESULT: SENTIMENT ANALYSIS

Positive Sentiment

**81.65%**

Negative Sentiment

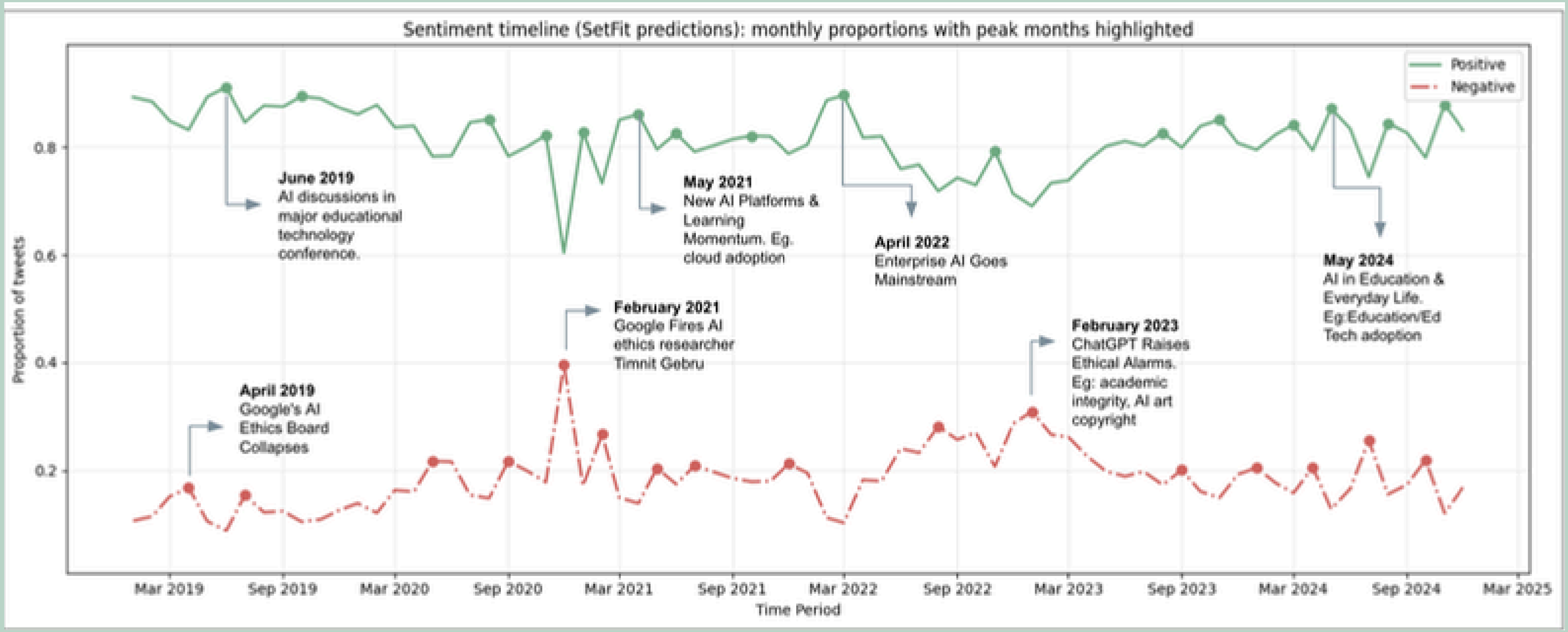
**18.35%**

High-Confidence

**95.87%**

Public discourse about AI in education was persistently and overwhelmingly optimistic across the entire 5-year observation window even through high-profile ethical controversies.

# RESULTS: SENTIMENT TRENDS (2019–2024)



# RESULTS: TOPIC MODELING

## Topic 01 (39.4%)

### AI IN EDUCATION & PEDAGOGY

Students, classrooms, teachers. Optimistic framing AI as instructional enhancement, not replacement. Human-in-the-loop ethos.

## Topic 02 (21.3%)

### APPLIED ML & DATA SCIENCE

Technical discourse: machine learning, data science, healthcare AI. Cross-domain upskilling and professional development.

## Topic 03 (20.8%)

### AI ETHICS, RISK & GOVERNANCE

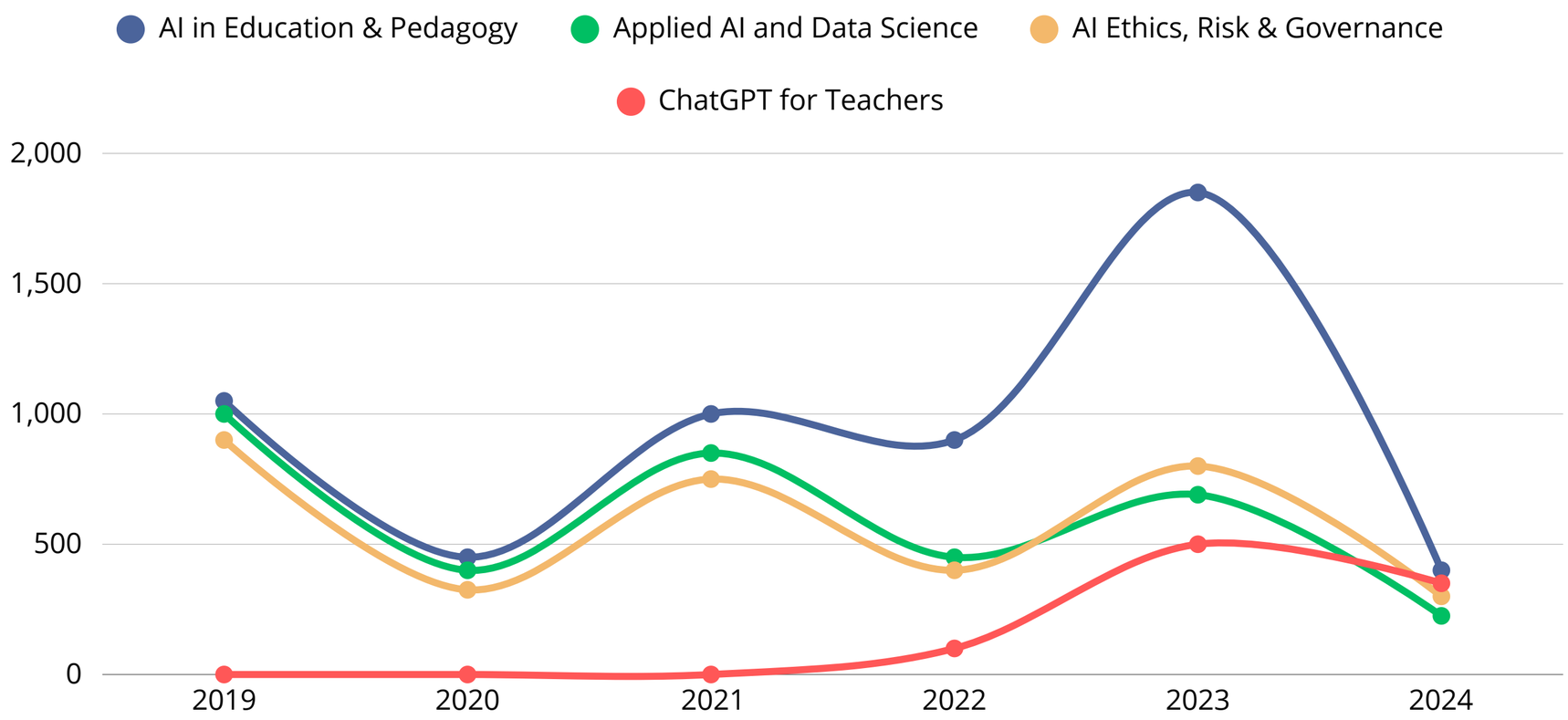
Algorithmic bias, fairness, privacy, accountability. Sophisticated vocabulary moves beyond surface concerns to systemic fairness.

## Topic 04 (7.1%)

### CHATGPT FOR TEACHING & CODING

Dual focus: risks (cheating, plagiarism) AND integration (prompting, lesson design, feedback). Disproportionately actionable.

# HOW DISCOURSE EVOLVED (2019–2024)




**2019–2021**
Steady discourse, driven by conference activity & ML tooling.

**2022**
Moderate growth across all themes.

**2023 SPIKE**
ChatGPT release triggers huge surge in AI in Ed discourse. Ethics & ChatGPT topics also rise.

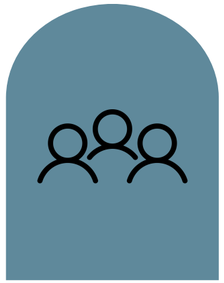
**2024**
Slight normalization but all themes remain elevated vs pre-2022 baseline.

# COMPARATIVE ANALYSIS: WHERE TWITTER/X ANALYSIS STAND?

## Policy Documents

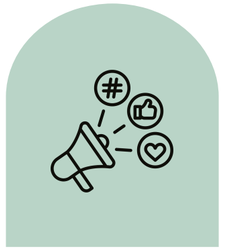
- Rich in principles (transparency, fairness, accountability)
- Education-specific guidance largely absent
- Silent on 'how' of classroom practice
- Slow to evolve

## Practitioners



- Aware of ethics but constrained
- Compliance-driven, not embedded
- Identify structural barriers & skill gaps
- Call for participatory design

## Media



- Episodic: spikes around events
- More balanced over time but shallow
- Focuses on crises, governance failures
- Limited sustained ethical analysis

## Twitter/X

- Practice-oriented + ethical vocabulary
- More ambitious than practitioners
- Event-driven but granular engagement
- Bridges all other domains

# IMPLICATIONS

## Guided Critical Engagement

Persistent optimism alongside ethical concern signals the public is not rejecting AI. Students are already using it. The question is how institutions shape that engagement: not whether to permit it.

## Algorithmic Amplification Shapes the Debate

Twitter's algorithms favor technical and morally complex content potentially excluding classroom teachers and students from governance conversations. 'Public opinion' on AI is filtered through engagement-optimizing systems.

## Structural Inequalities in Discourse

Technical literacy prerequisites may systematically exclude key stakeholders. Equity in AI governance requires deliberate outreach beyond technically proficient Twitter users.

# LIMITATIONS

1. Twitter only, misses Reddit, YouTube, academic forums
2. User base skews technically literate & professionally engaged
3. Engagement algorithms may over-represent emotionally charged content
4. Need longer longitudinal data to capture ChatGPT discourse maturation

# KEY HIGHLIGHTS

## Pragmatic, Not Polarized

Public discourse is broadly optimistic, receptive to AI adoption — not resistant. Anxiety is real but doesn't collapse enthusiasm.

## Ethics Is Central

AI Ethics, Risk & Governance (Topic 3) represents 20.8% of discourse comparable in size to technical ML discussions.

## Institutions Must Act

The public wants frameworks for responsible engagement, not blanket bans. Critical AI literacy is the path forward.

# THANK YOU