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Facial Recognition in Schools: Privacy vs Security

Why?

In today's digitally driven and surveillance-focused society, organizations managing large public spaces are increasingly implementing facial recognition systems, capable of identifying and authenticating individuals who are often unaware of their presence. The ethics of facial recognition, and the Artificial Intelligence (AI) processes driving it, are crucial for students to understand. This lesson builds critical thinking about technology's role in society, teaching students to evaluate the trade-offs between security and privacy. Facial Recognition (FR) systems are becoming more prevalent in schools, giving students the push to question how their personal data is handled and the implications of such surveillance. This awareness is increasingly important in a world where digital privacy is a major concern. By delving into these topics, students become informed digital citizens, prepared to engage with and shape a future where AI intersects with everyday life, understanding the balance between technological advancement and ethical responsibility.

Materials Needed	Time needed
• Projector for presentation • Copies of the case study (see below) • Worksheets for individual or group work (see below)	• Approx. 90 minutes

Objectives

- Students will be able to state opinions on of facial recognition technology in schools, the ethical implications, and how these technologies balance privacy and security.
- Students will be able to discuss ethical issues collaboratively.

Key Concepts & Vocabulary

- **Facial Recognition (FR) Technology**: A type of biometric software that can identify or verify a person's identity using their face. It captures, analyzes, and compares patterns based on the person's facial contours.
- **Biometrics:** Refers to the methods for uniquely recognizing humans based on one or more intrinsic physical or behavioral traits.
- **Data Privacy**: The proper handling, processing, storage, and disposal of facial data. This includes concerns about how facial images are collected, who has access to them, how long they are stored, and measures to ensure that this data is not misused or accessed by unauthorized parties.
- **Surveillance**: Monitoring of individuals using facial recognition technology. This can be for security monitoring, tracking attendance in schools or workplaces, or identifying individuals in public spaces.

- **Cybersecurity**: The measures and practices used to protect the facial recognition systems and the data they handle from digital attacks and unauthorized access.

Lesson Components

1. **Before You Watch**: Connect lesson to background knowledge about facial recognition and get students' attention
2. **Video**: Show the pedagogy.cloud video explaining the ethical considerations in the topic of the use of FR in schools.
3. **Case Study**: Detail a real-world scenario about school that has to grapple with the implementation of FR technology.
4. **Simulation**: Lead students through an interactive activity exploring the possible ethical considerations of different stakeholders in a school board meeting.
5. **Discussion**: Ask whole-class questions to reflect on experience and consider perspectives.
6. **Assessment**: Verify student understanding with an exit ticket

1. Before You Watch

Visual Engagement: Show an image of an iPhone using Face ID for a login. Ask students to describe what they see, and how they think the technology works. Ask if any students use this method. If so, how well does it work?

While You Watch: Mention these topics and questions for students to look out for as they watch the video:

1. What are three ways schools are using facial recognition?
2. Identify any mention of bias in the video.
3. How might facial recognition impact the classroom environment?

2. Video Summary

This animated video explores the use of facial recognition technology in schools, highlighting its potential for enhancing security and monitoring attendance, but also raising significant concerns about privacy and surveillance. It discusses the ethical dilemma of balancing safety with privacy rights, as well as issues of consent, data misuse, and the technology's accuracy, which can disproportionately affect certain groups. The video emphasizes the need for a thoughtful approach to this technology, considering its impact on the school environment, privacy, trust, and the broader implications for future educational settings.

3. Case Study

Distribute or read Case Study handout.
Summary: A middle school implements a facial recognition (FR) system to enhance security and streamline attendance tracking, addressing issues of security, truancy, and campus presence verification. The implementation draws mixed reactions: Students may feel safer or watched, parents are divided over security and privacy, and

staff appreciates efficiency but questions ethics. The case study highlights the delicate balance between privacy and security, underscoring the importance of ethical considerations in technological advancements.

4. Simulation

Scenario: School Board Meeting at Lincoln Middle School

Setting: A mock school board meeting, set up in a classroom or auditorium, with seats arranged for the board members (students taking on various roles), and an outer circle for audience members (other students).

Assign roles to students. Ask for volunteers or select students to portray different roles. This could be done in multiple small groups, or with one set of students while the remaining students watch.
The teacher may take the role of the school board chair, directing discussion and asking each person to speak in turn, and respond to the points of other students.

Statements For and Against FR Technology in Schools
The Simulation Handout lists several statements in favor and against using FR technology in schools. These can be distributed to students for information they might use in the simulation. Alternately, time can be given for the students to research the issue online prior to beginning the simulation.

Roles:

- School Principal: In favor of FR technology in order to get a handle on what is perceived as a significant issue with absentee students. Hoping to gain data that can be used to make informed attendance policy changes.
- Teacher: Has mixed feelings, but mostly skeptical about the use of FR technology. (This role could be split to accommodate more students – one more in favor, one more opposed) Understands the school's frustration with attendance issues. Worried about the impact on the classroom environment, student well-being, and mistrust entering into teacher-student relationships.
- Parent: Has mixed feelings about FR technology. (This role could be split to accommodate more students – one in favor, one opposed.) On one hand, appreciates the potential for increased security and the safety for their child; on the other hand, is concerned about privacy violations and the implications of having their child constantly monitored. Wants to ensure that their child's rights and freedoms are not compromised in the name of security.
- Student: Apprehensive about being constantly monitored. Concerns include privacy invasion, the potential for misuse of personal data, and the psychological impact of being under surveillance. Interested in voicing the opinions and concerns of the wider student body and advocating for student rights and freedoms.
- Privacy Advocate: Strongly opposed to the implementation of FR technology, citing significant concerns about privacy infringement, data security, and

potential misuse of personal information. Advocates for protecting individual rights and highlights the ethical dilemmas associated with surveillance technologies.
- Technology Expert: Presents data and research showing how FR technology can be a valuable tool in identifying potential threats and preventing incidents. Addresses technical aspects of the technology, including its accuracy and the measures taken to secure the data collected. Open to discussing the balance between security needs and privacy concerns.

Guidelines:
- Students may use information from the case study, their own experiences and thoughts, and the Simulation Handout to support their roles.
- Encourage respectful dialogue and active listening.

Task: Discuss the implementation of FR technology, addressing concerns and benefits. As the school board chair, the teacher can guide the simulation by asking thoughtful questions and moderating the discussion to ensure each participant's voice is heard. Here's a suggested sequence for the roles to speak and some guiding questions for each phase of the discussion:
- School Principal
- Security Expert
- Teacher
- Parent
- Student
- Privacy Advocate

Guiding Questions;
- Principal: What is the problem? Can you elaborate on how you believe FR technology will address the issue of absenteeism?
- Security Expert: What are the technical capabilities of this technology, and how do you see it improving school security?
- Teacher(s): What do you see as the potential positives of this technology implementation? How do you think this technology will impact the learning environment and teacher-student relationships?
- Parent(s): What are your primary concerns regarding the use of facial recognition in our school? Are there any benefits you see?
- Student: As a student, how do you feel about being monitored by this technology? What are your peers saying?
- Privacy Advocate: Could you explain the privacy concerns associated with facial recognition technology and why you believe they outweigh its benefits?

Outcome: This role-playing exercise helps students understand the complexities of this issue, considering multiple perspectives, ethical implications, and societal needs.

5. Discussion

These questions are designed to be used in whole-class discussion. Ask questions that relate most effectively to the lesson.

1. Would you want your school to adopt FR technology? Why or why not?
2. What if it was used to identify students having mental health crises in order to get them the help they need? Would that change your opinions?
3. How might we address the concerns about privacy while still reaping the potential benefits of this technology?
4. Are there any alternatives to facial recognition technology that could achieve similar goals?
5. What impact might this technology have on the school's culture and student behavior?
6. How do we address potential biases in facial recognition technology?

6. Assessment

Exit Ticket: Provide a prompt for students to reflect on their learning, such as:

- What was the most surprising thing you learned about Facial Recognition (FR) in schools?
- Which statement in favor of FR technology did you think was the strongest? The weakest?
- How has your opinion changed or been reinforced by what you've learned today?

Sources to Learn More

- Summary of trends and uses of FR technology - https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/biometrics/facial-recognition
- Article presenting a picture of the risks of FR in schools - https://theconversation.com/facial-recognition-in-schools-here-are-the-risks-to-children-170341
- Arguments in favor of FR in schools - https://gigasource.io/facial-recognition-in-school/
- Information on a study finding that FR misidentifies women and people of color at higher rates than white people - https://www.nist.gov/news-events/news/2019/12/nist-study-evaluates-effects-race-age-sex-face-recognition-software

Case Study: Facial Recognition in Schools

Lincoln Middle School is a modern educational institution at the forefront of technology. As part of a pilot program, the school's administration implemented a FR system to increase security and streamline attendance tracking.

The Problem: The school faced challenges with security, truancy, and verifying who was on campus. The administration believed facial recognition technology could provide a solution, swiftly identifying and recording the presence of students, staff, and visitors.

The Solution: A state-of-the-art FR system was installed at the school's entrances and in school hallways. Cameras captured faces, matching them against a database containing images of students, staff, and authorized visitors.

The Stakeholders:

- Students had mixed reactions. Some felt safer, while others were uncomfortable being constantly watched.
- Some parents applauded the security enhancement, while others were concerned about privacy and the collection of biometric data.
- Teachers and Staff appreciated the streamlined attendance process but had questions about the ethical implications.
- Administration were focused on safety but had to consider the concerns of all the other groups.

The Issues:

- Privacy Concerns: Critics argued that collecting and storing facial data could lead to misuse or accidental leaks. Privacy advocates were concerned about the long-term implications.
- Security Enhancements: Proponents insisted the system would deter unauthorized access and criminal activity, making the school a safer environment.
- Ethical Considerations: The debate extended into the realm of ethics. Was it right to monitor students continuously? What were the boundaries?

The Debate: Lincoln Middle School's pilot program brought facial recognition technology to the forefront of community conversation. They held town-hall meetings to gather input from all stakeholders. The school eventually modified their plan by restricting cameras to school entrances and exits, tracking the identities of people who went in and out of the school. This reduced the concerns of families and teachers who preferred not to be tracked while inside the building. Entry and exit times were available to teachers and families only through secure logins in the school’s online student information system. The case demonstrated that the balance between privacy and security was delicate, and that ethical considerations should always be a part of technological advancement.

Questions

- How would you feel as a student in a school with such a system? Would you feel safer, or would it make you uncomfortable?
- How do you see facial recognition technology evolving in the future?

Simulation: School Board Meeting

You will be portraying a person attending a school board meeting. These are the roles involved in this meeting:

- School Principal
- Security Expert
- Teacher
- Parent
- Student
- Privacy Advocate

Below are several statements in favor of Facial Recognition (FR) technology and opposed to FR technology. Determine which statements would relate to your role. Include your own thoughts about the issue as well. There may be additional reasons that are not listed here.

Statements in Favor

- FR technology quickly identifies everyone in the school as they enter the facility.
- FR technology significantly reduces the amount of time spent on attendance. This gets students to class faster and reduces paperwork logjams in the office.
- FR technology is 98% accurate, likely better than paper attendance taking.
- FR technology keeps track of who is in the building in case of an emergency.
- FR technology can identify instances of bullying, threatening, and other altercations, including quickly establishing chronological records of student movement, making students safer and maintaining discipline.
- FR technology helps school resource officers who may not have all of the hundreds of students memorized by their faces.
- FR technology can improve school safety by using artificial intelligence to identify safety threats and instantly alert everyone in the school building.
- FR technology is a constant set of eyes on the school. Surveillance cameras are only good if someone is watching them at a given time.
- FR technology can help locate students in the building, which makes it faster to contact students for an emergency or administrative need.
- FR technology can regulate access to restricted areas within a school, such as a science laboratory or faculty room, ensuring that only authorized individuals can enter.
- Advanced FR biometric technology may be able to identify instances of students experiencing health and mental health episodes, which can help them receive timely support and intervention.

Statements Opposed

- Adopting FR technology would make the school atmosphere like a prison, with constant surveillance, making students feel like they are always doing something wrong.
- FR technology undermines trust, creating a more adversarial school environment.
- FR technology's constant surveillance can cause anxiety among students,

potentially impacting their mental health and educational experience.

- FR technology collects constant data without continuous consent. Particularly with minors, students may not be able to give consent.
- FR technology would retain biometric data on minors, which is information that could be breached and stolen by cyber predators.
- FR technology may have demographic biases baked into it. Darker skin colors may not be matched as accurately as lighter faces.
- The procedures for who gets put on a school's watch list is potentially unfair. A student could be flagged for unethical reasons, retribution, or petty revenge.
- FR technology is a significant overapplication of invasive technology to a problem that is more of an annoyance – attendance tracking – then an actual problem.
- FR technology invades privacy. It infringes on families' right, and students' right to privacy.
- FR effectiveness is unproven. Even with a small percent of inaccuracy, wrong data creates a digital paper trail that can lead to long-lasting and potentially harmful consequences for students mislabeled in their permanent records.
- FR technology is expensive, and resources might be better used on more proven methods of improving school safety and attendance.