THE WALL STREET JOURNAL.

Critical Thinking Resource

Technology

About The Wall Street Journal's Critical Thinking Resource

We developed this guide to help you maximize The Wall Street Journal as a resource for your classes. You'll be able to energize discussions and engage students with tangible examples of course concepts that your students can apply in the real world. In addition, with the help of faculty partners, we've curated a special collection of our most popular and thought-provoking articles about technology. For each of these readings, we provide a summary, correlation to course topics, classroom applications and questions suitable for launching discussions and conducting assessments.

Here are some of the many ways to incorporate WSJ into your courses:

- COURSE READINGS: Assign articles as required reading alongside your textbook sections. For best results, include assessment questions on quizzes and exams.
- DISCUSSION LAUNCHERS: Use articles to spur classroom and threaded discussions in online and hybrid courses on core concepts and current events.
- EXTRA CREDIT: Allow students to read optional articles and answer assessment questions for extra credit.
- GROUP PROJECTS: WSJ is a rich source of real-world topics for group research and presentation projects.
- RESEARCH PAPERS AND CASE STUDIES: WSJ features provide timely citations for research projects.

Subtopic: Cybersecurity

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Developer Builds AI-in-a-Backpack to Help the Visually Impaired

REPORTER: John McCormick
REVIEWED BY: Jason D. Harry, Ph.D.
DATE: April 7, 2021
LINK TO ARTICLE: **CLICK HERE**

SUMMARY:

People with severe visual impairments have until recently relied on tapping canes or a guide dog to navigate the world outside their homes. A technology-based approach to overcoming the lack of sight has recently been developed: artificial intelligence (AI) to analyze complex visual scenes around the user and to provide real-time feedback on what lies ahead in their path. Advances in AI computing, a special three-camera input, and custom hardware and software come together in a sophisticated and highly "aware" visual assistant that conveniently fits in a wearable backpack.

Other systems have been developed to accomplish some aspects of this capability, but they typically require a steady internet connection to communicate with cloud resources. But this vision backpack runs independent of a network, clearly an important attribute when out and about. With all the AI-enabled image processing happening locally, the system can give immediate feedback to the user about signage, obstacles, traffic, and terrain that these individuals encounter while walking.

CLASSROOM APPLICATION:

Disabilities of any kind can create barriers to inclusion in society and traditional human activities. Certainly, visual impairments that limit mobility can add to isolation and disenfranchisement. If comfortable, ask students about their experiences with temporary or even permanent disabilities and how they impact a sense of inclusion.

Would this solution to visual impairment be a demonstrable improvement over low-tech approaches (canes and guide dogs)? To help students gain an appreciation of the feat accomplished by this AI enabled vision system, consider setting up a "test track" in the classroom. A blindfolded student is verbally guided by another student through an obstacle course of desks, trip hazards, directional signs, and unanticipated environmental changes (e.g. another student suddenly crossing the path). After the challenge, have the guide student recount the "visual and computational tasks" they had to manage in order to provide the necessary feedback in real time. Does that feel like a lot, or a little, for a computer-based system to manage?

QUESTIONS:

1. What are the “emerging enabling technologies” that make this system possible?
2. How might improved mobility change a person’s sense of inclusion?
3. Would a system like this make a visually impaired person feel safe enough to walk around, say, an unfamiliar city without other aids?
4. How should we think about the cost/benefit ratio of a system like this? Can we quantify, or determine the economic impact of, the benefit?
5. If a visually impaired person needed this system and couldn’t afford it, should health insurance (or some other entity) pay for it? How do your answers to number four above inform your opinion?
6. What similarities and differences are there between this vision feedback system and those used in autonomous vehicles (e.g. Tesla “autopilot” mode)?

The New Classroom Nuisance

REPORTER: Julie Jargon
REVIEWED BY: Jason D. Harry, Ph.D.
DATE: September 11, 2021
LINK TO ARTICLE: **CLICK HERE**

SUMMARY:

In classrooms of old, the Big Distractor for students was a book secretly open on the lap. In the electronics age, it became laptops, then swiping on smartphones. Now, a new distractor has emerged on students' wrists: smartwatches. As the miniaturization of electronics, sensors, and network connections has raced ahead, students can now very discreetly access the internet and its boundless information, texting, and live video (maybe catch a little of that soccer match if the lecture is boring?) at anytime and anywhere.

Classroom management practices have had to adapt as new technologies become prevalent. Many schools institute policies that tightly limit or prohibit access to computers and cellphones in class. (Surprisingly, parental texting is a common disruptor of students' attention, which can make enforcing outright technology bans tricky.) Concerns around "technology equity," a potential unfair advantage going to students who can afford the devices, spur administrators toward policies to create a level playing field for all students. The article highlights issues in high school settings, but smartwatches bring unwelcome distraction, and temptation to access forbidden resources during exams, to college classrooms as well.

CLASSROOM APPLICATION:

Start the discussion with a "raise of hands"—everyone raises both hands to reveal how many smartwatches are in the room. Students can look around and do an informal count on their own. With polling or other techniques, establish the sense of the room around whether smartwatches really do represent a distraction to the wearer (or others nearby). Arguably more important is exploring whether their presence in a classroom can tilt the academic playing field in any significant way, especially during closed-book exams. Do they see smartwatches as creating an equity issue; haves vs. have-nots?

Have students propose and debate language for policies that seek to control access to smartwatches during class. Explore how they would react to rather limp "guidance" language as opposed to quite draconian measures, including, perhaps, punitive measures for being caught using them during an exam.

As an adjacent, but important, topic, consider pointing students to research that documents the negative impacts that in-class distractions have on learning.

QUESTIONS:

1. Do you find smartwatches distracting to your in-class learning experience, either as a user yourself or as a neighbor to someone wearing one?

2. Should personal wearable technology like a smartwatch be beyond the reach of school policies? Is controlling what we wear really within the purview of rule-making?

3. If we have instituted a "no smartwatch in class" policy, how should it be enforced? Should students turn in their smartwatches at the door? What would be an acceptable disciplinary stance? Would enforcement be different for exams?

4. How might steady access to smartwatches actually enhance the learning experience? Should universities strive to outfit all students with them?

5. How should we think about managing the certain next advance in wearable technology: augmented reality glasses? Should we prepare to make policies to prohibit those in class?

Apple's iPhone Successor Comes Into Focus

REPORTER: Christopher Mims
REVIEWED BY: Jason D. Harry, PhD
DATE: December 4, 2021
LINK TO ARTICLE: **CLICK HERE**

SUMMARY:

Get ready for the next big thing in wearable technology: smart glasses. "Virtual reality" (VR) goggles (e.g. Meta's Oculus product) are already available. But those have been too bulky, heavy, and expensive to enjoy wide use. Also, they completely block the wearer's view of the real world around them, a clear downside. Smart glasses, on the other hand, project an "information layer" onto transparent glass that allows the wearer to retain a normal view of their surroundings. This is the "augmented reality" (AR) approach, in distinction to the fully immersive VR approach. Though AR headsets have made it to market (e.g. Microsoft's HoloLens), they remain outside the reach and interest of most consumers.

Apple, and its competitors, are on the verge of taking smart glasses to the next level, giving them form, price, and software that will position them for widespread adoption by an information-hungry public. By 2025, sales for the industry are projected to reach 4 million units, headed toward an annual market of perhaps $150 billion. We can expect to see people on the street, and in their cars, getting travel directions, restaurant recommendations, text messages, and video content without looking down at their laptop, smartphone or smartwatch.

CLASSROOM APPLICATION:

Begin the discussion with the basic question: do students believe that this product category will enjoy the same level of adoption as smartphones and smartwatches? There is already one failed AR headset named in the article: Google Glass. Perhaps that device was just ahead of its time. Have students design a "spec sheet" for a smart glasses product that they would find compelling. What combination of functionality, weight, size, and price would be exciting?

A rich realm of discussion can be built around the social, and perhaps academic, implications of smart glasses. We have all seen friends sitting together at a restaurant table, peering into their phones rather than conversing. Even if there is conversation, the phones are never far away, popping out of pockets and handbags at every chirp or buzz. Paint a scene of 4 people at dinner, all wearing smart glasses. What would that be like? Would we look through each other, as we attend to the flow of information projected in overlay? How would classes, and exams, be impacted by students wearing smart glasses?

QUESTIONS:

1. What was it about Google Glass that hampered its widespread adoption? Price? Functionality? Appearance?
2. What is different now, if anything, that fuels companies' huge investments in bringing the technology to market?
3. Is wearing computer and display technology on your face simply a bridge too far as a day-to-day product, or will it not be found problematic by consumer-level users?
4. What do you think the "killer apps" will be for smart glasses? What use cases are so compelling that they will drive customers to buy and use them, perhaps overcoming their initial reluctance?
5. What impacts might smart glasses have on everyday human interactions? Extrapolate from your experience with how smartphones and smartwatches interrupt conversations.
6. Should smart glasses be allowed in the classroom, especially during exams?