Internet of Things

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When I think about the Internet of Things (IoT), the first word that comes to mind is connection. To me, IoT is about how everyday objects are connected to each other and to the internet in ways that make environments smarter and more responsive. Gubbi, Buyya, Marusic, and Palaniswami (2013) describe IoT as technology that "blends seamlessly with the environment around us" (p. 1646). In higher education, I see IoT as a force that shapes the way students learn and interact with their surroundings, often in ways we do not even notice. Sometimes it feels like IoT is quietly running in the background, making things more efficient.

I do agree with the authors' perspective that IoT is transformative and will play a huge role in the future of education. Their point about IoT providing data that is "seamless, efficient and easily interpretable" (Gubbi et al., 2013, p. 1646) stands out to me because that is exactly what instructional designers and educators need in order to improve the learning process. At the same time, I do not think I share all of their optimism. Reading their vision made me reflect on how data driven education can sometimes feel impersonal, and I think it is important to keep students' privacy and autonomy in mind. For me, IoT has incredible potential in higher education, but it also comes with a responsibility to use it in ways that build trust and keep the human side of learning at the center.

When I think about IoT in the context of instructional design and higher education, three examples stand out to me. The first is smart classrooms. On many campuses, IoT shows up in simple things like ID card swipes for attendance, projectors that connect automatically, and sensors that adjust lighting and temperature based on how many people are in the room. From a student perspective, these features save time and make the classroom run more smoothly. From an instructional design perspective, I can imagine how helpful this could be for reducing

distractions and creating a better learning environment. But I also wonder about the other side of it. If attendance and participation are always tracked automatically, does that change how students feel about being in class? Does it motivate them, or does it feel like surveillance?

The second area is personalized learning through analytics. IoT allows for so much data to be collected about how students interact with materials. I have noticed how professors adjust courses based on patterns they notice like providing extra resources for topics where students tend to struggle. I can imagine how, in instructional design, IoT could take this even further by tracking engagement with different tools or activities. Gubbi et al. (2013) highlight the importance of turning data into knowledge (p. 1646). IoT could help instructional designers know what is working and what is not so they can make learning experiences more responsive. I think it is important to remember that behind every data point is a student, and their experience should not be reduced to just numbers on a dashboard.

The third example is immersive and remote learning. This is where I personally get most excited about IoT. I have read about nursing programs using IoT enabled mannequins that provide real time feedback during simulations, or science students being able to join labs remotely. For students who cannot be in a physical classroom or lab, IoT opens up opportunities to participate in meaningful, hands on learning experiences from anywhere. To me, this feels like the most promising use of IoT in education.

My feelings about IoT are a mix of excitement and caution. I agree with Gubbi et al. (2013) that IoT is revolutionary, and I see how it has already started to shape higher education through smart classrooms, personalized learning, and immersive experiences. But I also think it is important to approach IoT with balance. It has to be more than just collecting and analyzing student data. For me, IoT means opportunity, but also responsibility. As someone studying

instructional design, I see IoT as a tool that can help create better learning, as long as we remember to keep instructional materials focused on the learners.

References

Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M. (2013). Internet of Things (IoT): A vision, architectural elements, and future directions. Future Generation Computer Systems, 29(7), 1645-1660.