Proceedings: Sensemaking Workshop for the 'Generative AI in Education: Opportunities, Challenges and Future Directions in Asia and the Pacific' Initiative

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Background

The second phase of the APRU-Microsoft collaboration initiative 'Generative AI in Education: Opportunities, Challenges and Future Directions in Asia and the Pacific' kicked off with the Sensemaking Workshop last March 14 - 15, 2024. The workshop was attended by university professors and administrators, representatives from technology and publishing companies like Microsoft and Elsevier, and researchers from research institutions.

The workshop aimed to:
1. Identify common patterns and trends across case studies on the use of AI in universities that can inform effective strategies for adoption.
2. Recognize gaps and opportunities for additional AI applications in universities.

The workshop is part of the wider APRU-Microsoft collaboration that aims to achieve the following:
1. Create a "baseline snapshot" of how AI is used across our institutions and draw out best practices and case studies.
2. Gain deeper understanding of the a) opportunities and challenges generative AI may have on higher education, and b) identify specific needs and potential knowledge gaps with a specific focus on equity and inclusion.
3. Identify potential approaches, solutions or tools to address needs and knowledge gaps.

Synthesis

Participants shared observations and insights related to the case studies. A synthesis of these insights and observations is presented here.

Building trust for AI systems

- **Transparency is essential for building trust in AI systems, but achieving meaningful transparency is more complex than simply disclosing information**. Workshop participants noted that transparency is a key principle for responsible AI adoption, but discussions revealed the multifaceted nature of this concept. While providing information about AI systems' purpose, training data, and limitations is important, true transparency also involves ongoing dialogue and collaboration with stakeholders. This suggests that transparency should be viewed as an active, iterative process rather than a one-time disclosure.

- **The rapid pace of AI development presents both opportunities and challenges for universities, but the most significant challenges may be cultural rather than technological.** Workshop discussions emphasized the breakneck speed of AI advancement and the pressure on institutions to keep up. However, participants noted that the biggest barriers to AI adoption in education were often not technical, but cultural. In one case study, a university had access to state-of-the-art AI tools, but struggled to get faculty buy-in due to concerns about job security and the value of human expertise. In another example, an institution faced resistance from students who felt that AI-enhanced learning was impersonal and transactional.

Governance and implementation

- **Universities are developing responsible AI governance frameworks, but there is a risk of these frameworks becoming static and inflexible in the face of rapid technological change.** A number of institutions represented in the workshop were in the process of creating policies and guidelines for ethical AI use in teaching and learning. While these efforts are crucial for ensuring responsible adoption, some participants raised concerns about the ability of governance frameworks to keep pace with the rapid evolution of AI technologies. In one case study, a university had developed a comprehensive AI ethics protocol, but found that it quickly became outdated as new AI capabilities and risks emerged. This suggests that responsible AI governance requires not just initial frameworks, but also mechanisms for ongoing monitoring, review, and adaptation.
- **Equity and accessibility are key considerations in the adoption of AI in education, but there is a risk of AI amplifying existing biases and inequities if not implemented thoughtfully**. Workshop participants recognized the potential of AI to make education more inclusive and equitable, such as by providing personalized support for diverse learners. However, case study discussions also surfaced concerning the possibility of AI perpetuating or even exacerbating existing disparities if issues of bias and fairness are not proactively addressed.

Creating opportunities for deeper and meaningful engagement

- **Authentic learning experiences can be enhanced with AI, but authenticity involves more than just simulating real-world scenarios**. Case studies demonstrated the potential of AI to

create learning experiences such as simulated patient encounters. However, workshop discussions also highlighted the importance of authenticity in terms of personal relevance and meaning-making. For instance, in a project-based learning course, AI was used to connect students with real-world datasets and expert mentors, allowing them to explore genuine problems that mattered to them. In a creative writing course, AI writing prompts were designed to elicit students' unique voices and experiences. These examples suggest that authenticity in AI-enhanced learning involves not just fidelity to real-world contexts, but also opportunities for students to bring their whole selves to the learning process.

- **Educators may need to intentionally slow the pace of learning to counterbalance the speed of AI-powered experiences.** As AI tools enable students to access information and complete tasks more quickly, there is a risk that the pace of learning may become too rapid, sacrificing depth for speed. To mitigate this, one participant suggested that instructors may need to dedicate more time to reflection, discussion, and deeper exploration of course material. This highlights the importance of intentional course design and pacing to ensure that students have sufficient opportunities for meaningful engagement with the subject matter.

- **AI-powered collaborative learning tools could promote more equitable participation among students.** In a discussion on collaborative learning, one participant shared their research findings, which indicated that group discussions were often dominated by the most knowledgeable student, limiting the participation of others. It was suggested that AI tools providing personalized feedback and support could help level the playing field, enabling more students to contribute meaningfully to collaborative activities. By offering targeted guidance, AI could empower students with varying levels of knowledge to engage more actively in group learning experiences.

'Pedagogy first, AI second' approach

- **AI-assisted instructional design requires deep pedagogical knowledge to be effective.** In one case study, an educator experimented with using generative AI as a design assistant for creating educational courses. While the AI tool could automate tasks like mapping learning outcomes to assessments, the educator found that a deep understanding of pedagogy was still essential to ensure the quality and effectiveness of the resulting curriculum. AI tools may not replace the need for pedagogical expertise in instructional design, but rather serve as a complementary tool that requires skilled human guidance.

- **Pedagogy should drive technology adoption**, **but there are inherent challenges in mapping AI capabilities to pedagogical goals and principles**. Workshop participants agreed that educational goals and pedagogical principles should be the starting point for any AI implementation. However, case study discussions revealed that aligning AI tools with specific learning objectives and instructional strategies is often easier said than done. In one example, faculty in a biology department struggled to find AI applications that effectively supported their inquiry-based learning approach, leading to a mismatch between the technology and the pedagogy. In another case, instructors in a writing program found that the AI tools they explored tended to prioritize efficiency and standardization over the creativity and experimentation they valued.

- **Prompt engineering is an essential skill for effective AI use, but it also represents a new form of digital literacy that goes beyond technical proficiency.** Workshop participants recognized the importance of crafting well-designed prompts to elicit meaningful outputs from AI systems. However, discussions also revealed that prompt engineering involves a complex set of skills and considerations beyond just technical know-how. Effective prompts need to be not only syntactically correct, but also aligned with pedagogical goals, learner needs, and disciplinary norms. In one case study, a faculty learning community focused on developing "pedagogical prompts" that integrated subject matter expertise, instructional design principles, and an understanding of AI affordances. This suggests that prompt engineering represents a new dimension of digital literacy that requires a holistic, interdisciplinary approach.

- **Unintended AI behaviors can provide valuable learning opportunities in educational contexts and improve pedagogy.** In a case study involving a virtual patient AI, the agent displayed unexpected behaviors, such as smiling sheepishly, which were not part of the original design. In another case, an educator asked students to critically evaluate AI responses, including for hallucinations. Educators and developers should be open to learning from these unintended AI behaviors and use them to inform teaching methods, and the iterative design process of educational AI tools.

Shift to values and skills-based learning

- **Universities have a responsibility to prepare students for an AI-driven world, but this responsibility extends beyond just technical skills to include critical thinking and ethical**

reasoning. Case studies highlighted the importance of equipping students with the technical skills to use and develop AI tools. However, workshop discussions also emphasized the need for students to develop higher-order abilities such as critical thinking, ethical reasoning, and metacognition in the context of AI. In one example, a computer science program not only taught students how to build AI systems, but also engaged them in discussions about the social and ethical implications of these technologies. In another case, a humanities course used AI as a lens to critically examine questions of agency, creativity, and what it means to be human. These examples suggest that preparing students for an AI-driven world involves not just technical proficiency, but also the ability to think critically and ethically about the role of AI in society.

- **The rise of AI in education may catalyze a shift towards values-based and skills-oriented assessments.** Although assessment design was not a central focus of the workshop, one participant noted that the increasing use of AI in education might prompt educators to rethink their approach to evaluation. As AI tools become more adept at handling knowledge-based tasks, there may be a greater emphasis on assessing students' values, skills, and ability to apply their knowledge in real-world contexts. This insight suggests that the integration of AI in education could serve as a catalyst for a broader shift in assessment practices.

- **Generative AI can help students explore novel connections and ideas in their research.** One case study highlighted how an AI-powered writing assistant exposed a student to new concepts related to their research question and explained their relevance. By suggesting unconventional connections and ideas, the AI tool helped the student broaden their perspective and consider approaches they might not have encountered otherwise. This insight underscores the potential of generative AI to stimulate creative thinking and support students in exploring diverse viewpoints and interdisciplinary connections in their academic work.

Human-centric education

- **AI can make expert thinking visible and accessible to students, but this requires a shift in how we conceptualize expertise and authority in education**. Several case studies showcased the potential of AI to democratize access to expert knowledge and skills. However, workshop discussions also suggested that this shift requires a reconsideration of traditional notions of expertise and authority in educational contexts. In one case, a writing course that used AI-

generated feedback had to grapple with questions of authorship and intellectual property. These examples highlight the need for educators to adopt a more expansive and inclusive view of expertise in the age of AI, one that recognizes the value of machine intelligence while also affirming the enduring importance of human judgment and creativity.

Fostering human-to-human interaction

- **The use of AI in education may lead to increased engagement with technology but decreased interpersonal engagement.** While several case studies demonstrated how AI tools can provide personalized support and interactive learning experiences, there was also a recognition that students might become overly reliant on these tools. One participant expressed concern that as students spend more time engaging with AI, they may spend less time collaborating with peers and developing essential interpersonal skills. This insight highlights the need for educators to strike a balance between leveraging the benefits of AI and fostering human-to-human interaction in the learning process.
- **AI has the potential to enhance human interaction and feedback in unexpected ways, beyond simply providing efficiencies**. While many discussions emphasized the importance of human connection in education, several case studies highlighted how AI can actually enrich and enable more meaningful human interaction. In a writing course, AI-generated feedback served as a starting point for deeper discussions between students and instructors about the craft and process of writing. These examples suggest that AI, when designed purposefully, can amplify rather than replace human interaction.
- **AI can enable more personalized learning support at scale, but personalization should be balanced with opportunities for collaboration and social learning**. Workshop case studies showcased impressive examples of AI-powered personalized learning, such as adaptive courseware and intelligent tutoring systems. However, discussions also highlighted the importance of social and collaborative dimensions of learning that should not be lost in the pursuit of individualization.

Balancing human and AI-based decision making

- **Balancing structure with flexibility and autonomy in AI-enhanced learning and tool design emerges as a central challenge, necessitating nuanced approaches that are sensitive to the educational context, goals, and individual learner needs.** Workshop discussions and case studies revealed a spectrum of preferences for AI integration in education, from highly structured applications in courses like physics, where AI simulations follow a strict sequence, to more open-ended explorations in the arts, encouraging creative engagement with AI tools. Similarly, the design of specific AI-powered applications, such as writing assistants, highlighted the delicate balance between providing necessary guidance and fostering student autonomy. Students' varied reactions to the level of control exercised by these tools underscore the importance of designing AI educational technologies that can adapt to diverse learning styles and preferences. This integrated insight suggests that the key to successful AI integration lies in customizing the balance between guided learning and independent exploration, avoiding one-size-fits-all solutions to accommodate the broad spectrum of student engagement and learning objectives.

The role of educators in the age of AI

- **As AI reshapes the educational landscape, the role of educators is evolving in significant and sometimes surprising ways, requiring a re-envisioning of professional identity and development.** Workshop discussions highlighted the transformative impact of AI on the nature and scope of educators' work. While some case studies emphasized the efficiency gains and time savings afforded by AI tools, others surfaced more profound shifts in the core responsibilities and competencies of teaching. In one example, faculty in a writing program found themselves spending more time on higher-level tasks such as providing individualized feedback and facilitating peer review, and less time on routine grading and administrative work. In another case, instructors in a computer science course had to develop new skills in AI ethics and responsible design to effectively guide student projects. These examples suggest that the integration of AI in education is not just a matter of adopting new tools, but also of fundamentally reimagining the role and identity of educators in the digital age. This transformation will require a significant investment in ongoing professional development and support to help faculty navigate the changing landscape of teaching and learning.

- **The role of educators may shift from providing knowledge to facilitating knowledge flow and application in an AI-rich learning environment.** Throughout the workshop, participants noted that as AI tools become more adept at delivering information and providing personalized support, the role of educators may evolve. Rather than being the primary source of knowledge, instructors may focus more on helping students navigate, critically evaluate, and apply the knowledge they acquire through their interactions with AI. This insight suggests a shift in emphasis from content delivery to facilitating the flow and practical application of knowledge in an AI-enhanced learning environment.

Faculty support

- **AI literacy is crucial for both students and faculty, but there is a significant under-investment in developing AI literacy for faculty**. While the importance of AI literacy for both students and faculty was widely acknowledged, the workshop revealed a surprising gap in institutional efforts to train and support faculty in this area. Many case studies highlighted the need for faculty to understand AI capabilities, limitations, and ethical considerations to effectively integrate these tools into their teaching. However, few examples emerged of comprehensive professional development initiatives to build faculty AI literacy. This suggests that institutions may be overlooking a critical component of successful AI implementation in focusing primarily on student-facing applications.
- **Building AI literacy among faculty may require tailored learning paths based on their readiness levels.** The workshop discussions revealed significant variations in AI knowledge and readiness among faculty members. Given these differences, institutions may need to develop differentiated approaches to AI literacy training. This could involve offering a range of learning paths and support options, from introductory courses for those with limited AI experience to more advanced programs for faculty members already engaged in AI-related research or teaching. The insight underscores the importance of meeting faculty where they are in their AI literacy journey to ensure effective professional development.

Next steps

The findings from the sensemaking workshops will serve as inputs to a strategic foresight workshop on the future of universities in the AI age on June 13 - 14, 2024. Participants will collaboratively develop visions of how universities might function in an AI-integrated world. These visions will offer perspectives on AI adoption in higher education, showcasing opportunities, challenges, and gaps. The workshop aims to produce a range of scenarios to provide universities with a cohesive framework for contemplating AI adoption, reflecting diverse values and strategies.