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General Comment

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As an academic researcher and educator specializing in systems engineering and Artificial intelligent technologies, I recommend the Office of Science and Technology Policy (OSTP) for its continued commitment to shaping a forward-looking and inclusive AI R&D strategic plan. In response to this request, I offer insights grounded in both academic research and applied innovation, particularly related to AI-driven adaptive learning systems and human-AI interaction models that promote cultural competency and real-time decision-making across high-stakes industries.

My current research and provisional U.S. patent application—titled “System and Method for Cultural Sensitivity Training”—reflect a novel approach to AI-assisted professional education. The platform utilizes Artificial Intelligence Markup Language (AIML) in conjunction with machine learning algorithms to create dynamic, scenario-based training environments. The system departs from traditional, static e-learning modules by introducing AI-generated virtual avatars that interact with users in real time, evaluate decision-making skills, and adapt training paths based on user behavior and learning curves. This methodology supports a critical national need: preparing our workforce, especially in sectors like healthcare, aviation, emergency response, and mental health, to navigate culturally sensitive and high-pressure scenarios with competence and adaptability.

This AI-enabled platform also incorporates innovative model-based architectural pattern libraries that refine and expand scenario complexity through user interaction data. These libraries represent a dynamic feedback mechanism—each session becomes a training dataset that enhances future learning experiences, allowing the AI to personalize education with increasing precision. The integration of real-time behavioral analytics provides a profound advantage: learners are no longer passive recipients of information but active participants whose decisions shape their educational journey. This has significant implications for federal AI R&D strategy, particularly in the realm of workforce development, AI in education, and equity in access to high-quality training.

Furthermore, the envisioned future enhancements—speech recognition, emotional analytics, and virtual reality (VR) integration—represent essential vectors for national investment. These elements are critical to creating immersive, emotionally intelligent AI systems capable of nuanced human interaction. For example, VR-integrated simulations for first responders or air traffic controllers could replicate real-world environments with high fidelity, while emotional analysis could help clinicians improve bedside manner or de-escalate crises. Such interdisciplinary applications underscore the need for a national strategy that funds not only core algorithmic research but also applied R&D that brings AI to the front lines of professional development and public service.

To advance national competitiveness, the strategic plan should prioritize investments in AI that bridge the gap between technical innovation and human-centered design. Specifically, I recommend enhanced federal support for translational research that applies AI in educational, healthcare, and public safety training domains. These initiatives should include cross-agency collaborations that align AI innovation with Department of Education, Department of Health and Human Services, and Department of Homeland Security priorities, among others. Additionally, fostering public-private-academic partnerships will accelerate deployment and scalability of impactful AI solutions like the adaptive training platform described herein.

In conclusion, as the United States moves forward with a renewed strategic vision for AI R&D, it is imperative to prioritize systems that elevate human capability, particularly through culturally intelligent, responsive, and personalized AI platforms. My ongoing research and innovation reflect the transformative potential of such systems, and I urge OSTP to incorporate support for human-AI collaborative

frameworks in the national plan. Doing so will not only enhance the nation's technological leadership but also ensure that AI serves to uplift human potential in the most critical sectors of society.