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### **INSIGHTS FROM THE APPLICATION OF ACTIVITY THEORY IN INFORMATION SYSTEMS RESEARCH**

My research interest and experience in using activity theory, encapsulated in my PhD thesis and subsequent publications, has been instrumental in exploring the intricate dynamics of work environment virtualization within higher education institutions (HEIs) in developing countries. Work environment virtualization refers to the process of transforming the traditional physical and spatial aspects of work into digital and networked forms, enabled by information and communication technologies (ICTs). This process has significant implications for the way HEIs operate, communicate, and collaborate, as well as for the quality and accessibility of education they provide. However, this process also entails various challenges and complexities that need to be understood and addressed. To do so, I have employed a unique approach by integrating activity and agency theories to unravel the complexities associated with this transformation.

Activity theory is a theoretical framework that originated from the cultural-historical school of psychology, and has been widely applied in various fields of study, such as education, human-computer interaction, and organizational studies. Activity theory views human activity as a collective, mediated, and goal-oriented phenomenon, involving multiple components, such as subjects, objects, tools, rules, community, and division of labor. Activity theory also emphasizes the dialectical nature of human activity, which is constantly evolving and facing contradictions that can lead to change and development.

Agency theory is another theoretical framework that has been extensively used in economics, management, and sociology. Agency theory examines the relationship between two or more parties, where one party (the principal) delegates some tasks or decisions to another party (the agent), who may have different interests, goals, or preferences. Agency theory analyzes the factors that affect the alignment or misalignment of interests between the principal and the agent, such as contracts, incentives, monitoring, and information asymmetry.

By combining activity and agency theories, I have developed a comprehensive and multi-actor perspective on work environment virtualization within HEIs in developing countries. My approach stands distinct from previous studies, as it delves deep into not just the technological aspects but also the human and organizational facets of virtualization. It underscores the pivotal role of human interactions, rules, and procedures that are often overlooked or taken for granted in the literature. It also extends the scope of analysis to include multiple actors

involved in a principal-agent relationship, such as HEI administrators, faculty members, students, ICT providers, and external stakeholders. This broader perspective unveils nuanced insights into contradictions and resolutions that are intrinsic to such complex systems.

The identification and analysis of contradictions at various levels - within HEI activity systems and principal-agent relationships - is a hallmark of my research. Contradictions are defined as tensions, conflicts, or inconsistencies that arise within or between the components of an activity system, or between the interests or goals of the principals and agents. Contradictions can be sources of problems, but also of opportunities for learning and innovation. My research illuminates how these contradictions can be resolved or mitigated to pave the way for efficient information management and effective virtualization.

As I forge ahead, my focus has shifted towards exploring the implications of Generative AI within HEIs, especially those located in the global south. Generative AI is a branch of artificial intelligence that aims to create novel and realistic content, such as text, images, audio, or video, based on existing data or models. Generative AI has the potential to revolutionize various domains of human activity, such as education, entertainment, art, and science. However, it also poses significant ethical, social, and technical challenges that need to be carefully examined and addressed. Activity theory will continue to be my compass, guiding me through uncharted territories.

My future research will concentrate on three key focus areas related to Generative AI in higher education:

1. **Ethical Concerns & Contradictions:** Utilizing activity theory's strength in identifying contradictions, I aim to uncover ethical dilemmas arising from AI integration within HEIs – addressing concerns related to privacy, autonomy, and potential biases. For instance, how can HEIs ensure that the data used or generated by AI is protected and respected? How can HEIs balance the benefits and risks of delegating tasks or decisions to AI? How can HEIs prevent or correct the biases or errors that may occur in AI outputs or processes?
2. **Human-AI Interaction:** Building upon my previous work's foundation on human interactions within virtualized environments, I am interested in exploring how AI influences these dynamics – unveiling new roles, rules, and contradictions. For example, how can HEIs foster effective and meaningful collaboration between humans and AI? How can HEIs establish clear and consistent rules and norms for human-AI interaction? How can HEIs cope with the contradictions or conflicts that may arise from human-AI interaction, such as trust, power, or responsibility issues?
3. **Policy & Regulation:** As AI becomes pervasive and influential, there will be an imperative need for robust policies and regulations that ensure ethical use while promoting innovation. My research will contribute insights instrumental for policy formulation and implementation at various levels, such as institutional, national, and international. For instance, what are the best practices or standards for AI integration within HEIs? What are the legal or ethical frameworks or principles that should guide AI development and deployment within HEIs? What are the roles and responsibilities of different actors or stakeholders in AI governance within HEIs?

In conclusion, activity theory remains central to my research ethos—offering a lens through which complex human-technology-environment interactions are viewed with clarity and depth. As we step into an era where Generative AI becomes integral to the fabric of higher education institutions globally, understanding its nuanced

impacts, especially within resource-constrained settings of developing nations, becomes paramount. This is where my future research endeavours lie focused.

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