

Chapter 2

Theoretical Perspectives on AI Integration in Educational Institution

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Abstract

The most encouraging trend in contemporary education is the accelerating integration of AI tools into schools. As more schools begin to adopt these AI-enabled tools (i.e., intelligent tutoring systems, predictive analytics, adaptive learning platforms, and automated administrative processes), it is essential to identify the theoretical bases for understanding the adoption, implementation and effectiveness of AI tools in school settings. The purpose of this chapter is to provide an in-depth analysis of the theoretical foundations upon which AI has been incorporated into education. A variety of theoretical perspectives are used to develop this analysis including technological determinism, socio-technological systems theory, diffusion of innovation theory, activity theory, transformational leadership theory, and constructivist learning theory along with a number of critical/ethical frameworks. Through the examination of each of the different theoretical positions, this chapter will provide a comprehensive view of the way in which AI becomes intertwined with various aspects of educational institutions (i.e., institutional systems, pedagogical processes, stakeholder involvement, and ethical considerations). The chapter will also explore how some theoretical positions (i.e., diffusion of innovation theory) account for stages and factors associated with the adoption process while others (i.e., socio-technological systems theory) emphasize the interdependence of technology systems and human agents; and, finally, how the presence of both positive and negative critical and ethical issues (i.e., bias, data privacy, surveillance and equality) continue to complicate the use of AI in schools. Additionally, the chapter emphasizes the important role of leadership, vision, and institutional culture for successfully incorporating AI and equity in school settings.