

Technocentrism

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Technology

Digital Technologies

Technocentrism

Technocentric Thinking

Technology-Centered Approach

Technology-Driven Change

Technology-Based Education

Technocentrism is the tendency to view technology as a central component for addressing complex social issues and driving transformative changes. In the context of education, technocentrism manifests as an excessive focus on the use of technology in teaching, learning, and assessment processes through prioritising the adoption of technological tools, platforms, and digital resources to enhance educational outcomes without adequately considering the broader educational context. According to Papert (1987), technocentric thinking leads to questions that investigate the impact of technology on human interaction and development, such as learning, without considering the complexity of the context in which the technology is situated. Technocentric thinking separates digital technologies from their social and cultural context and suggests a one-way influence of technology on educational policies and practices, including pedagogy, teacher roles, and education objectives. Researchers in the digital education field have proposed several approaches to address technocentrism in education by acknowledging the role of technology and the complexity of the relationships between different social and material components in the educational setting (cf., Brennan, 2015; O'Donoghue et.al, 2001; Papert, 1988).

EdTech companies, media, and education intermediaries often describe educational success as a direct result of the adoption and development of software, platforms, and technology systems (Suoranta et al 2022). Within the formal education sector, policy documents, reports, and evaluations of learning interventions have a tendency to attribute the recent, ongoing or potential change to the demands or opportunities of technology. Digital technologies are often perceived as means to shake things up, fix a broken education system, and reconstruct education provision in appropriate ways for current and future demands (Burch & Miglani, 2018; Selwyn, 2016). Such technocentric thinking and assumptions are prevalent also within the field of educational technology research and practice (Selwyn, 2016). The influence of technocentric thinking on the field can be observed in the way technology is conceptualised, adopted, and implemented in educational contexts.

Technocentrism suggests an oversimplification of a complex relationship, such as that between human and non-human actors in an educational space or setting. It is one result of holding a theory of *technological determinism*, which “seeks to explain social and historical phenomena in terms of one principal or determining factor” (Chandler, 1994). It is a factor in technological solutionism, which sees social, educational, and other problems as being amenable to being solved through new technologies or new applications of technology. When Papert used the term technocentrism in 1987, he contrasted it with his preferred approach, “computer criticism”, which was concerned with placing computers in socio-cultural perspective. As an example of technocentric thinking, he offered the question: “What is THE effect of THE computer on cognitive development?” (p.23) – and criticised this question for ignoring factors such as skill, design, social structure, and cultural integration. While such critical responses to technocentrism in education began early, many commentators in digital education are still centring digital technology in the learner's experience. In their view, “the learning is focused on learning about the tool/technology or the effects of the tool/ technology itself, rather than learning with or through the technology” (Brennan, 2015, p.289). The technology itself takes precedence over other crucial factors, such as the specific needs of learners, the pedagogical considerations, or the social and cultural dynamics of the learning environment. Instead of leveraging the potential of the technology to support and amplify meaningful learning, it becomes an end in itself. The critical exploration of ideas, the development of critical thinking skills, and the cultivation of creativity and collaboration take a backseat to the mastery of technological tools and platforms.

Hamilton and Friesen (2013) describe an ‘essentialist’ approach to educational technology that maps closely to technocentrism: the expectation that “technical functionality will lead to the realization of an associated human potential once the technology is in place” (p.4). They note that an alternative approach, instrumentalism, appears to work in opposition to essentialism because it frames technology as a tool that operates according to human goals and delivers intended outcomes. Instrumental approaches can be seen in phrases such as “the pedagogy must lead the technology”, which attempts to assert the dominance of human intention (Cousin 2004). For instance, Harris and Hofer (2011) claim that effective integration of the technology in the classroom requires a structured planning known as technology, pedagogy, content, and context knowledge (TPACK). However, Hamilton and Friesen argue that instrumentalism, by privileging human intentions, also oversimplifies the relationship between technology and social, cultural, economic, and other factors in education.

Another approach to countering technocentrism in educational technology draws on sociomaterial and posthumanist theory to attempt a more nuanced account of how technology emerges from and within networks of human and non-human actors and cannot be seen as separate from them (Fenwick, Edward, & Sawchuk 2011). These approaches engage with materials from a relational perspective and help account for unintended consequences and for the range of practices and outcomes that are associated with digital education. Sociomaterial research redefines educational activities such as learning and knowing as shaped by materiality and emerging from webs of interconnections among human and materials actors. In recent years, postdigital approaches to education have provided another productive way of viewing digital technology as sufficiently interwoven with contemporary learning and teaching contexts that it is not possible or desirable to identify its consequences or impacts in technocentric terms (Jandrić, et al., 2018). Fawns' work on entangled pedagogy further supports this argument by highlighting the intertwined nature of technology and pedagogy (Fawns, 2020). The concept of entangled pedagogy emphasises that technology and pedagogy cannot be considered in isolation. Instead, they mutually shape and influence each other in complex ways.

While technocentric thinking is prevalent in a range of digital education research and practice, nobody would claim to be technocentric. Technocentrism is generally a term that is applied in a critical way to others' work rather than a description of an established position in educational research. Pea (1987), responding to Papert, highlighted the way that technocentrism is positioned as a less advanced form of criticism, one that must be diagnosed and overcome (p.5). He asks “whether anyone but a straw person actually holds the technocentric beliefs that Papert describes” (p.5), and suggests that they do not. Nevertheless, technocentrism continues to be observable in both practical and theoretical forms in the field of digital education. At the same time, the ongoing efforts of some researchers and educators to work against forms of technocentrism have made an impact on the field of educational technology. Their

critical examination of technocentrism has led to new insights, alternative perspectives, and more balanced approaches to considering technology in educational contexts.

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