Fighting The Brainrot: How AI Shapes Secondary Education and Adolescent Development

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As the adoption of artificial intelligence systems continues to grow across a wide range of fields and applications, concerns have arisen about their use by students and their impact on student outcomes, especially for adolescent students undergoing a key period of social and cognitive development. This paper argues that although artificial intelligence is not inherently bad, the way users interact with AI negatively impacts adolescent development. Drawing on neuroscientific and psychological studies of adolescents and young adults, this study examines how AI-assisted workflows are not suitable for adolescents still developing their critical and metacognitive thinking skills, with possible implications for skill acquisition and long-term retention. Reliance on AI to complete writing tasks reduces cognitive engagement, a sense of ownership and authorship of ideas and works, and can contribute to unnoticed skill decay. Over the long term, this reliance can lead to an inability to complete these tasks without AI assistance, with devastating implications for adolescents' future careers. Beyond cognition, the confident, highly affirmative, and authoritative tone of AI chat models can shape adolescents' social reasoning, susceptibility to bias, and outlook on reality, reinforcing their current belief system rather than giving them the space to challenge their ideas. While artificial intelligence can have positive applications in education under carefully controlled conditions, its general adoption risks setting students up for failure in the future. This paper aims to break down the binary decision about AI in education and serve as a resource for educators to decide how and when to implement these technologies most effectively.