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Success in Higher Education

INDIVIDUAL ASSIGNMENT COVERSHEET

Family Name: Dahal Given Name: Roshan

Student Number: 20030922 Lecturer's Name: Sayma Rahman

Subject Name: BUS707 Applied Business Research T 125

Assignment Title: Assessment 2 - Research Plan Resources

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05 / 04 / 2025 — Date

Assignment Receipt

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05 / 04 / 2025 — Date

Topic: AI and Machine Learning

Title: The Impact of Artificial Intelligence on Student Learning, Cognitive Development, and Creativity

Research Overview and Justification

Artificial Intelligence (AI) has rapidly transformed educational environments by offering personalized learning experiences, intelligent tutoring systems, and creative content generation. With AI tools like ChatGPT, Grammarly, and adaptive learning platforms becoming widespread, the traditional learning model is being reshaped (Holmes et al., 2019). These tools are designed to support learners with instant feedback, resource access, and even emotional support. While they provide notable advantages, such as increased accessibility and efficiency, there are rising concerns regarding overdependence, reduced critical thinking, and the authenticity of student work (Zawacki-Richter et al., 2019).

The pandemic of COVID-19 caused the sudden implementation of AI in learning environments, specifically hybrid and remote learning. With online learning platforms becoming the norm, students started using AI for solutioning, writing, and generating ideas. However, there is relatively less research in this area that ascertains the effect of dependence on cognitive development and creativity after long periods of time. Scholars make the case that creativity necessitates struggle and problem-solving, potentially circumvented by AI tools (Luckin et al., 2016).

This research is important since it addresses the less-studied issue of the impact of AI on cognitive skills and creativity among learners. Through evaluating positive enhancement as well as potential drawbacks, the research will help teachers and policymakers design better frameworks for AI use in schools. The findings will inform fair, effective, and ethical use of AI in schools.

Research Questions and Research Objectives

The swift growth of Artificial Intelligence in education is providing opportunities as well as challenges with the impacts it brings to the students' learning, thinking, and creativity. While AI tools provide individualized learning, real-time feedback, and efficiency that is further improved, people worry that they lead to the detriment of critical thinking, the excessive reliance on technology, and even the possible loss of original thought. As the dependence of schools on AI platforms increases, the doubt is whether these tools are motivating students to learn or they are accidentally resisting them. This research is critical in examining these questions, pointing out the real impact of AI on the students, and inspiring results that can be of use in the process of efficient and responsible AI integration in schools.

Research Questions (RQs):

1. To what extent does Artificial Intelligence impact on the way students learn and think?
2. To what extent do AI tools enhance or hinder creativity and innovation in academic settings?

Research Objectives (ROs):

- To evaluate the extent to which Artificial Intelligence is changing the way students learn and think.
- To evaluate the extent to which AI tools enhance or hinder creativity and innovation in academic settings.

Initial Literature Review

1. Holmes, W., Bialik, M. and Fadel, C., 2019. *Artificial intelligence in education promises and implications for teaching and learning*. Center for Curriculum Redesign.

2. Zawacki-Richter, O., Marín, V.I., Bond, M. and Gouverneur, F., 2019. Systematic review of research on artificial intelligence applications in higher education–where are the educators?. *International journal of educational technology in higher education*, *16*(1), pp.1-27.

3. Luckin, R. and Holmes, W., 2016. Intelligence unleashed: An argument for AI in education.

Holmes, Bialik, and Fadel (2019) explore how technology is changing the landscape of education by doing two things: making substantial use of automation and personalizing education. The AI systems today have the capability to carry out such tasks as grading, content adaptation, and progress tracking. The authors posit that while the context increases productivity and is favorable for individualized learning at the same time, it unknowingly promotes student passiveness. This situation results in the lack of essential skills for the students to think critically and make their decisions, affecting their long-term cognitive growth (Holmes et al., 2019).

In AI and Higher Educational meta-analysis, Zawacki-Richter, Marín, Bond, and Gouverneur (2019) identified that most of the existing AI tools in higher education have been envisioned with little or no educator input. This disconnects results in AI systems that often fail to support creativity and cognitive development goals. Furthermore, they highlight a major research gap: the absence of long-term studies that assess how AI impacts student learning outcomes (Zawacki-Richter et al., 2019).

Luckin and Holmes (2016) argue that AI should act as a supportive partner rather than a replacement for human teaching. They stress the need for the role of an instructor in AI implementation to the technology foster creativity and critical thinking. In addition, the essay expresses worry about ethical matters, more precisely to student data and the ethical use of AI algorithms (Luckin & Holmes, 2016).

These studies collectively support the idea that AI has a mixed influence—supporting learning efficiency but potentially reducing depth in creative and cognitive engagement. However, gaps remain in quantifying long-term impacts on creativity and student thinking processes, which this research intends to address.

Significance/Contribution of the Research Project

This study has potential not only for the theoretical field but for practical issues, too. Emotionally, it will supplement the overwhelming literature on the "AI in Education" subject, especially related to cognitive growth and talent. It will be engaging to gather in-depth insights on how teaching

methods are moving away because of AI tools and where the new sources of power are and the new restrictions. This study implies the accumulation of fresh information about the various roles of AI brought in education, which the instruments of AI with which the students are empowered and the limitations in their use are the things identified. The authors seek to address the general lack of data over a long-term period as well as the viewpoint of educators in their computerising student's intelligence and creativity quest. Hence, thus, will the study depict a diverse portrayal of AI's impact on student intellect and creativity.

From a practical side, the results will enable teachers, managers, and curriculum developers to decide on what aspects of AI to integrate into the educational environment based on the empirical results. It will offer recommendations on how to structure AI use to complement rather than replace traditional cognitive learning methods. Additionally, this study can guide policy decisions around ethical AI usage, promote digital literacy among students, and support training programs that focus on AI awareness and critical usage.

References

Holmes, W., Bialik, M. and Fadel, C., 2019. *Artificial intelligence in education promises and implications for teaching and learning*. Center for Curriculum Redesign.

Zawacki-Richter, O., Marín, V.I., Bond, M. and Gouverneur, F., 2019. Systematic review of research on artificial intelligence applications in higher education–where are the educators?. *International journal of educational technology in higher education*, *16*(1), pp.1-27.

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