



Effects of the Artificial Intelligence Literacy Education Program on Preservice Secondary Teachers in South Korea

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Abstract

Recently, educational researchers have been striving to develop artificial intelligence education programs and analyze their effectiveness. However, research on the implementation of such programs targeting preservice teachers remains limited. Therefore, this study was conducted to investigate the effects of the artificial intelligence literacy education program on preservice secondary teachers. The educational contents included analysis of intelligent agents, big data, speech recognition applications, natural language processing, heuristic search, logical reasoning, machine learning, reinforcement learning, perceptron and neural networks, deep neural networks, coexistence with artificial intelligence, algorithmic bias, ethics of artificial intelligence developers, and ethics of AI implementers. To validate the effects of the AI literacy education program, an experiment was conducted with pre-service secondary teachers from M University, involving a total of 19 participants. The post-test averages for AI content knowledge and AI attitude were higher than those for the pre-test averages overall, and this difference was statistically significant. Through this research, it is hoped that AI literacy education programs for prospective teachers will be expanded. Subsequently, the implementation of similar programs at teacher training institutions and the analysis of their effectiveness in follow-up studies are anticipated. In this study, the AI literacy education program targeted for preservice secondary teachers was found to be effective in both AI content knowledge and AI attitude. In the future, it is necessary to research ways to integrate AI knowledge into content knowledge in various subject areas for operation.

Keywords: *Artificial intelligence education, Teacher education, South Korea*