

An Example of Accessible Education Practice Tailored to Twice-Exceptional Students

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Abstract

The research focused on the implementation of a six-week programme, designed using Web 2.0 and artificial intelligence-supported teaching materials; to teach idioms and proverbs to twice-exceptional (she is a talented pupil with low vision) 4th grade primary school pupil. In this context, the first aim of the study is to determine whether a six-week accessible learning environment, designed to help twice-exceptional student learn proverbs and idioms, is effective. The secondary aim is to determine whether, through collaborative learning with peers of the same age attending BİLSEM, students with low vision are more willing to use technology-based tools in line with their interests and needs. The study sought to answer the following questions: “Do AI-supported teaching materials created using Web 2.0 tools for two different groups of students facilitate the process of learning proverbs and idioms? Does collaborative learning support twice-exceptional student in using technology-based tools? Does collaborative learning support twice-exceptional student developing their social-emotional skills?”. The method used in the study is a single-subject experimental design. It can be stated that the single-subject experimental research method is one of the methods that enables a scientifically rigorous examination of the causal or functional relationship between dependent and independent variables. In this context, this method was chosen as it serves the aim of the study and aligns with the defined study group. The sample for this study was selected using purposive sampling. Purposive sampling designs are also referred to as non-

probability-based sampling designs. A common feature of these designs is that they are economical and easy to implement. The student in the sample group twice-exceptional is 11 years old, a girl and a music student in the science and art center. Data for the study were collected using a Demographic Information Form, Knowledge Test and a Semi-Structured Interview Form. The educational programme, developed twice-exceptional student, was implemented over six weeks at a rate of two lesson hours per week. The programme was delivered in sessions of 40 minutes' teaching followed by a 10-minute break. To determine the reliability of the implementation, experts were consulted regarding the activities and activity materials used within the programme. The implementation reliability analysis was carried out using the formula: $\text{observed teacher behaviour} / \text{planned teacher behaviour} \times 100$. The implementation reliability of the study was found to be 95 per cent on average. All visuals relating to the implementation process within the six-week training programme were uploaded to a virtual museum using the 'artsteps' application. Results from pre- and post-training questionnaires indicated significant improvements in low vision "in terms of their ability to learn proverbs and idioms, understand their meanings, recognise whether their meanings are positive or negative, use them appropriately, and the number of correct answers they gave to knowledge-based questions, as well as their social-emotional development. The study found a difference between pre-test and post-test scores. At the conclusion of the study, twice-exceptional student had shown an increase in their ability to learn proverbs and idioms, understand their meanings, recognise whether those meanings were positive or negative, use them appropriately, and in the number of correct answers they gave to knowledge-based questions. Furthermore, positive development was observed in her social-emotional skills. It was also observed that other BILSEM pupils experienced positive changes in their perceptions of twice-exceptional pupils. The preparation of web 2.0 and AI-supported educational content tailored to different subjects for twice-exceptional students is among the recommendations put forward.

Keywords: Accessible Learning; Science and Art Center; Gifted and Talented Education; Low Vision; Special Education