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Information and Communication Technology (ICT) Education Improvement for Enhancing Learning Performance and Social Equality

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Abstract : Social inequality is a persistent problem. One of the ways to solve this problem is through education. At present, vulnerable groups are often less geographically accessible to educational resources. However, compared with educational resources, communication equipment is easier for vulnerable groups. Now that information and communication technology (ICT) has entered the field of education, today we can accept the convenience that ICT provides in education, and the mobility that it brings makes learning independent of time and place. With mobile learning, teachers and students can start discussions in an online chat room without the limitations of time or place. However, because liquidity learning is quite convenient, people tend to solve problems in short online texts with lack of detailed information in a lack of convenient online environment to express ideas. Therefore, the ICT education environment may cause misunderstanding between teachers and students. Therefore, in order to better understand each other's views between teachers and students, this study aims to clarify the essays of the analysts and classify the students into several types of learning questions to clarify the views of teachers and students. In addition, this study attempts to extend the description of possible omissions in short texts by using external resources prior to classification. In short, by applying a short text classification, this study can point out each student's learning problems and inform the instructor where the main focus of the future course is, thus improving the ICT education environment. In order to achieve the goals, this research uses convolutional neural network (CNN) method to analyze short discussion content between teachers and students in an ICT education environment. Divide students into several main types of learning problem groups to facilitate answering student problems. In addition, this study will further cluster sub-categories of each major learning type to indicate specific problems for each student. Unlike most neural network programs, this study attempts to extend short texts with external resources before classifying them to improve classification performance. In short, by applying the classification of short texts, we can point out the learning problems of each student and inform the instructors where the main focus of future courses will improve the ICT education environment. The data of the empirical process will be used to pre-process the chat records between teachers and students and the course materials. An action system will be set up to compare the most similar parts of the teaching material with each student's chat history to improve future classification performance. Later, the function of short text classification uses CNN to classify rich chat records into several major learning problems based on theory-driven titles. By applying these modules, this research hopes to clarify the main learning problems of students and inform teachers that they should focus on future teaching.

Keywords : ICT education improvement, social equality, short text analysis, convolutional neural network
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