TWO CLASSIFICATION METHODS FOR EDUCATIONAL DATA AND IT'S APPLICATION

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Both methods, Rule Space Method (RSM) and Neural Network Model (NNM) are techniques of statistical pattern recognition and classification approaches developed from different fields; one is for behavioral and the other is for neural sciences. RSM is developed in the domain of the educational statistics. It starts from the use of an incidence matrix Q that characterizes the underlying cognitive processes and knowledge (Attribute) involved in each Item. Examinee's mastered/non-mastered states (Knowledge State) for each attribute is determined from item response patterns. RSM uses the multivariate decision theory to classify individuals, and NNM that is considered as a nonlinear regression method uses the middle layer of the network structure as classification results. We have found some similarities and differences between the results from the two approaches, and moreover the both methods have supplemental characteristics to each other when applied to the practice. In this paper, we compare the both approaches by focusing on the structures of NNM and on knowledge States in RSM. And finally, we show an application result of RSM for a reasoning test in Japan.

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