Using Artificial Intelligence as a Decision Support System in School Administration

THE DEVELOPMENT OF AN EXPERT SYSTEM FOR STUDENT SUBJECT SELECTION

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ABSTRACT

It is now relatively common for schools to use computers for clerical purposes, and they have been demonstrably successful in supporting these tasks. Nevertheless the potential for computers to analyse data and provide recommendations from which decisions can be made has been greatly under-utilised.

The aim of this research project is to ascertain whether computerised decision support systems, such as expert systems, can be developed to assist in the administration of schools. Reports in the literature suggest they should and thus a central research problem was to demonstrate that they could. Resolution of this problem involved several elements: (1) modelling a specific decision making domain in a school, (2) designing and implementing an expert system to assist decision making in this domain, and (3) evaluating the expert system to validate its recommendations and compare its performance with the current system and human experts.

An expert system was developed to provide recommendations pertaining to the selection of subjects each term for junior secondary students. The trial school used a unitised curriculum and vertical timetable; students could select from a wide range of subjects each term but had to comply with a complex array of school prerequisites and certification requirements.

The performance of the expert system prepared as a result of this project was demonstrably superior to the current manual system dependent on human experts. The evaluations clearly demonstrated the validity and reliability of the prototype's recommendations. Users' responses were positive, and confirmed the value of using an expert system in this domain.

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