INTEGRATING FUZZY LINGUISTIC AND OWA IN FACULTY PERFORMANCE EVALUATION

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Abstract

The higher education in Taiwan is facing competitive competition due to challenge of globalization, low birth rate and knowledge based economy in recent year. Faculty is the core of education. Nowadays, public expect teachers from universities not only taking responsible of ethic learning but also knowledge teaching, technical support and community service. Ministry of education in Taiwan implement quality control policy by the means of enhance the academic achievement of students, faculty and school. The purpose is to assess both the performance of faculty and university through systematic data collection and accurate assessment system to ensure achievement in teaching and to trim the fat.

At present, almost all university in Taiwan establish teacher review system to response "University Act" as reference for upgrading, reengagement, suspension, refusal of reengagement and encouragement of teachers. The most conducted approach is to review the performance of students, however it is very controversial. Proponent agree that it will lead to improve teaching quality. As the other hand, opponent question the fairness because it only conducts questionnaire result from student as teaching efficiency. Therefore, teaching, research, community service and student consultancy should be included as recognition of professional performance and as motivation to improve. Moreover, most faculty agree with new teacher review system as reference for position upgrading purpose. Appropriate teacher review system can strengthen the teaching quality. Management level of school will be able to learn the performance of faculty and the overall performance of school. However, there are still disagreement on selection of conditions of teacher performance and also difference on weight distribution. A systematic teacher review system should cover all aspect of different standpoint and education strategy. It should address more on less reviewing items selection and sufficient

weight distribution.

The assessment of teachers' performance should proceed in multi-attribute though those are difficult to be under one standard or scale. Besides, different data are presented in different approach which make the overall comprehensive evaluation even more difficult. Previous work of performance assessment questionnaire conduct Likert Scale. As a matter of fact, feelings are abstract. Scale approach is unable to express human mentality which are fuzzy and uncertain. However, interval linguistic variable is a method that help participant of questionnaire more easily to express their feeling. It is more accurate to express one's feeling or mentality in between adjacent linguistic variable than a single number. A few methods of performance assessment is complicated in application due to the subjective weight determination. In 1988, Yager conduct fuzzy sets theory to develop a conception work of ordered weighted averaging(OWA). The operator of OWA uses the cardinality of elements to calculate their weights. If the value is stable, the final weight can be decide. The method provides excellent result for aggregating several inputs. This study is aim to develop a teachers' performance assessment module which concern several aspects such as research, teaching, service and student counseling. The module will use integrated ordinal variable and linguistic variable to integrate the opinion of experts. Through this conversion method, the assessment information will reach the consistency. In addition, using OWA operator to calculate the weight between the factors of teachers' performance in order to apply as upgrading reference. This will improve the weakness of previous work in weight decision making because those mostly collect distortion and simplified data. This research objects will be the faculty of Chung Hwa University. As consequence, the analysis will show if the assessment module is practice.

Keyword：Fuzzy Linguistic, OWA Operators, Teacher Assessment System