











Using this, the ranking  $A_2 > A_3 > A_1$  is obtained. Now, the essays have been graded and the wanted number of best essays can be selected for extra points.

#### 4. Summary and conclusions

In this paper a multiple criteria multiple peer assessment system that is based on a scorecard with linguistic inputs was introduced. The proposed system is such that it can be used peer-assessment in on-line eLearning environments, and will assist trainers / teachers in (dramatically) reducing the workload connected to student assignments. It also allows the use of peer-evaluation to become a part of the learning process, an issue that is as important, or even more important, than the issue of facilitating assessment and reducing the work load for the teacher.

The linguistic scales used in the on-line scorecard are mapped to fuzzy scales. The resulting fuzzy assessments from each peer are combined into a decision making matrix. This matrix is weighted for each decision maker by a self-assessment of expertise. The decision matrices are combined into one matrix and the assessments are aggregated by FOWA. The well-known O'Hagan's method is used for the weighting of the criteria.

The FOWA operator is a relatively new method, and so far its usage in on-line peer-assessment systems has, to the best of our knowledge, not been studied. It differs from conventional aggregation operators in the sense that it aggregates fuzzy numbers instead of crisp numbers. The use of the method provided by Kaufman and Gupta with FOWA was proposed for ordering of fuzzy numbers.

As an avenue for further research, we observe that the problem of finding suitable total ordering is essential in this type of an approach, and that researching total ordering is an interesting future research direction.

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