Yun Lu* (lu@kutztown.edu), Mathematics Department, Kutztown University, Kutztown, PA 19530. Improved Teaching-Learning-Based Optimization Metaheuristic for Multiple-Choice Multidimensional Knapsack Problems.

In this paper, we improve the performance of the teaching-learning-based optimization (TLBO) method by introducing 'teacher training' before the teaching phase of TLBO. That is, before the teaching phase of TLBO, we perform a local neighbourhood search on the best solution (the teacher) in the current population. The effectiveness of teacher training (TT) in terms of both solution quality and convergence rate will be demonstrated by using this approach (TT-TLBO) to solve a large (393) number of problem instances from the literature for the important (NP-Hard) multiple-choice multidimensional knapsack problem (MMKP). Furthermore, we will demonstrate that TLBO outperforms the best published solution approaches for the MMKP. (Received March 21, 2017)