The purposes of this research were to develop the learning change measuring methods in case of having pre-posttesting and to compare their qualities with the true difference score method, difference ability method, gain score method, and Lord's learning change measuring method. Bloom's learning theory and four ideas of ceiling effect were applied in the development. Each idea had two ways out in practice : using estimated true score, and raw score. Thus 8 methods of learning change measuring methods were proposed. Monte Carlo simulation was employed, using micro-computer on three learning types (mastery, regular and semi-mastery), three pre-post ability correlations (0.4, 0.6 and 0.8), three sample sizes (30, 50 and 100), and three sets of items (30, 60 and 120).

The research results revealed that 1) in most of the studied cases, each developed learning change measuring method had highly criterion related validity and statistically significant at .01 level; 2) each developed learning change measuring method could discriminate rank in accordance with the criterion methods and statistically significant at .01 level in all studied cases; 3) each developed learning change measuring method had higher reliability coefficient than gain score method, and Lord's learning change measuring method for more than 76 percent of replications; 4) The method whose ceiling effect was influenced by the proportion of the true score of the difference between full score and posttest score with true pretest score measured by estimated true score had lower standard error of measurement than gain score method for more than 98 percent of replications.