Teaching and learning of statistics is becoming an increasingly important issue in statistical education. One pressing issue is how to continuously improve the teaching and learning of statistics at the tertiary level. Given its importance, statistical education researchers have attempted to investigate factors that relate to students’ learning outcomes in statistics. Among the continuous issues of concern is how to improve the teaching and learning of statistics at the tertiary level. Despite the great emphasis on the importance of statistics, students are still facing difficulty in learning statistics. This study focused on modelling factors associated with students’ understanding in basic statistical concepts namely students’ perceived ability, students’ attitudes, teaching practices and learning practices using Structural Equation Modelling. The reliability, unidimensionality, and validity of the Perceived Ability in Statistical Concepts Questionnaire (PASQ), 30-item Multiple Choice Questions (MCQ30), Survey of Attitudes toward Statistics (SATS), Teaching Practices in Statistics Questionnaire (TPSQ) and Learning Practices in Statistics Questionnaire (LPSQ) were examined based on the Rasch Measurement Model and confirmatory factor analysis. The major advantages of the Rasch analysis over the Classical Test Theory is that it produces linear, interval measures, item-free person measures, and sample-free item difficulty estimates on the same linear scale in standard units (logits). The results showed that students’ perceived ability in statistics tend to be strongly related to students’ test performance and students’ attitudes toward statistics. Teaching practices also significantly affect students’ learning practices. Learning practices and teaching practices does not necessarily affect attitudes toward statistics and do not also necessarily lead to increase in students’ learning as demonstrated in their test performance.

The halal market has grown tremendously due to the Muslims’ global demand of halal quality on products as prescribed by the shariah law. Halal is accepted as a quality standard and is applied to product supply and manufacturing encompassing processed food, cosmetics, pharmaceutical and medical products. Halal suppliers or manufacturers must abide to the halal quality regulation enforced by the public, semipublic and private regulatory bodies offering halal certification. These regulatory bodies play an important role within the halal supply chain as their operational efficiency may effect the efficiency and the competitiveness of the halal industry. This research is conducted to investigate the strategic approach on halal quality management to address operational efficiency of the halal food certification system using the Malaysian halal certification as a case study. The case study comprises of activities that investigate the factors that influence operational efficiency of halal certification before proceeding with a detailed and holistic description of the halal ecosystem as a strategic approach. A preliminary study that was conducted to gauge the relevancy of this work revealed that the halal certification enforcement is plagued with a diversity of issues centered on inefficient work process due to the lack of manpower, scarce use of technology and reliance of manual work process and governance structure that slows down the certification process. Two main studies were further conducted to investigate the perspective of the supply and demand sides of halal certification. The first study looks into the supply side where face-to-face interviews were conducted with representatives of halal regulatory bodies from the public, semi-public and private regulatory bodies followed by document reviews of the practice. The second study looks into the demand side where...