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Nonlinear relationships in structural equation analysis became more interesting for applied researchers since the implementation of nonlinear constraints in software programs (i. e. LISREL). This article provides a comprehensive application of the expectancy \times value part of the Theory of Planned Behavior (Ajzen, 1991) including interactions of latent variables. The main purpose of the study is to overcome limitations of similar previous analyses of Baumgartner and Bagozzi (1995) and Yang Jonsson (1997) with an empirical example from representative survey data. Nonlinear relationships of the theories' constructs (Attitude toward the behavior, subjective norm and perceived behavioral control) are analyzed one upon another with multiple group comparisons and latent interaction models. Results confirm the strategy to use multiple group techniques for preliminary analyses (i. e. detection of an interaction effect). With latent interaction models the strength and the significance of the interaction is estimated under control for random measurement error. Parameters, standard errors, and goodness-of-fit statistics are compared between three estimation techniques (ML, GLS and WLS). Multiple group analyses and latent interaction modeling detect a significant interaction for perceived behavioral control but not for attitude toward the behavior and subjective norm. Variations of the estimators of the perceived behavioral control submodel is proved by bootstrapping. Further model improvements and alternative model techniques are discussed in the final chapter.