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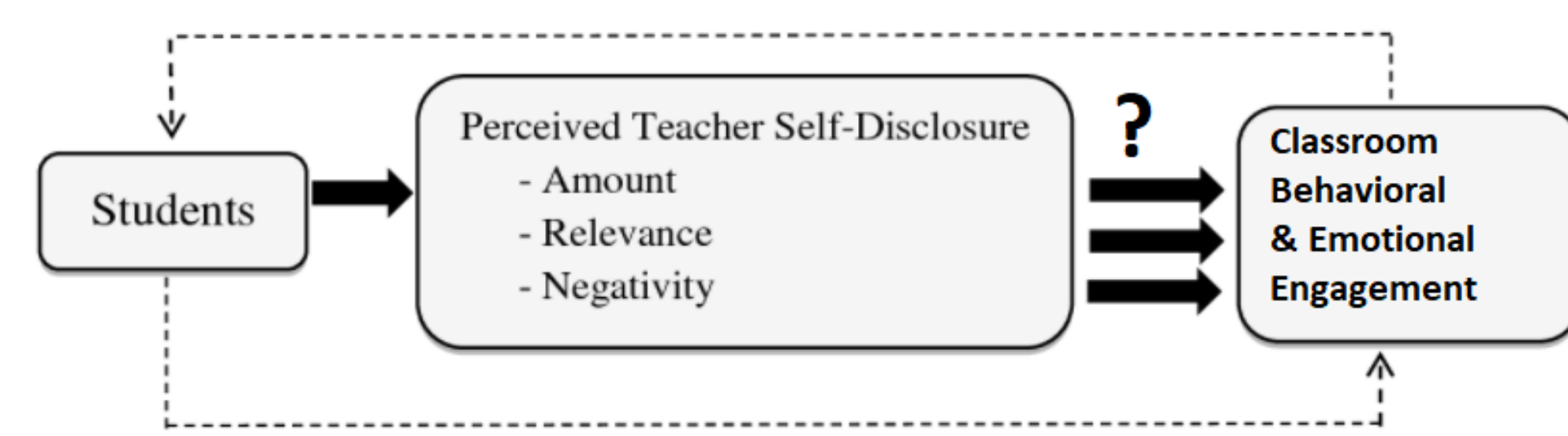
The Role of Teacher Self Disclosure in STEM Undergraduate Students' Levels of Emotional and Behavioral Engagement

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Background

It is known that teacher self-disclosure and classroom engagement have positive role in the learning process across disciplines ((Henry & Thorsen, 2018; Cayanus & Martin, 2016).



This study specifically investigates the direct effect of teacher disclosure on undergraduate students' emotional and behavioral dimensions of classroom engagement in STEM courses.

Methods

The surveys used in this study included:

- 1- Student Engagement in the Mathematics Classroom Scale (Kong et al., 2003)
- 2- Teacher Self-Disclosure Scale (Cayanus & Martin, 2008)
- 3- Situational Interest Scale (Rotgans & Schmidt, 2009)
- 4- Intrinsic Motivation Inventory (IMI) (Deci et. al., 1994)

- Online self reported survey was administered to 300 first-year students and 260 second-year students of the First year Research Immersion program
- 212 participants completed the survey

Results

Confirmatory Factor Analysis (CFA)

Overall, CFA allows to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists (Alhija, 2010).

Figure 1
First Order Three Factors Correlated Model

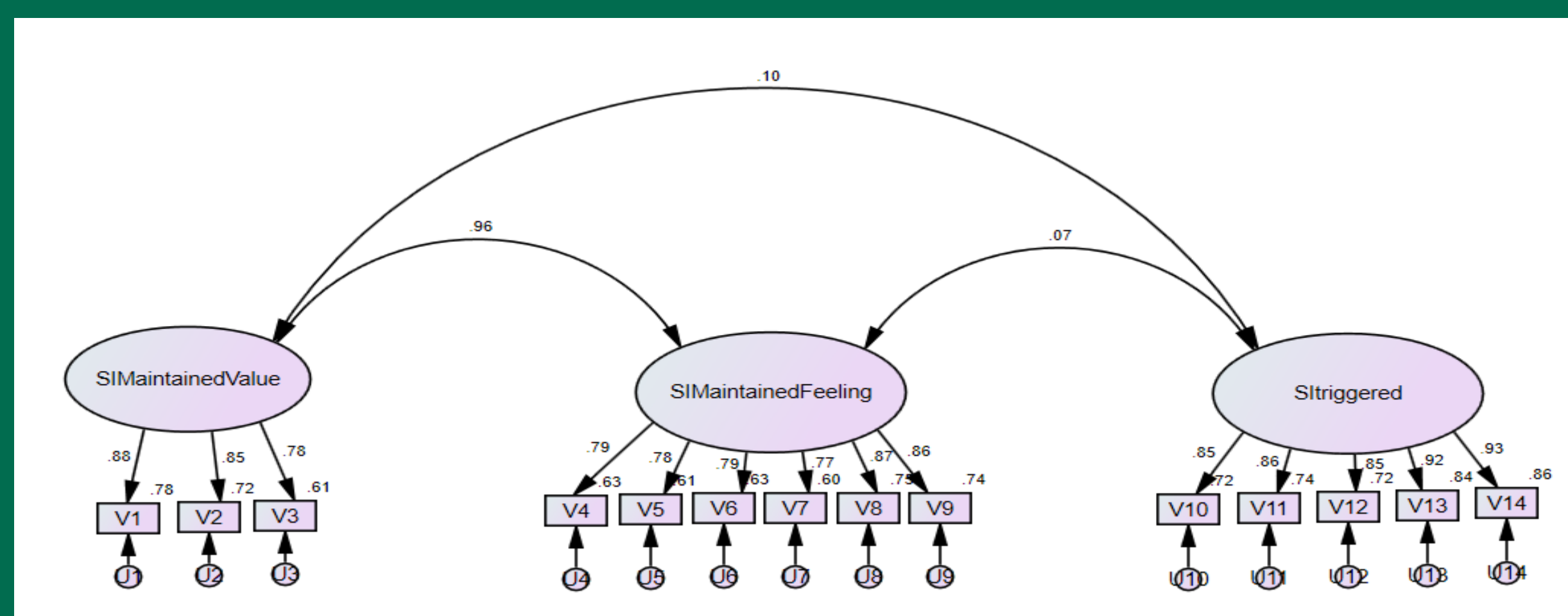


Figure 2
First Order Four Factors Correlated Model

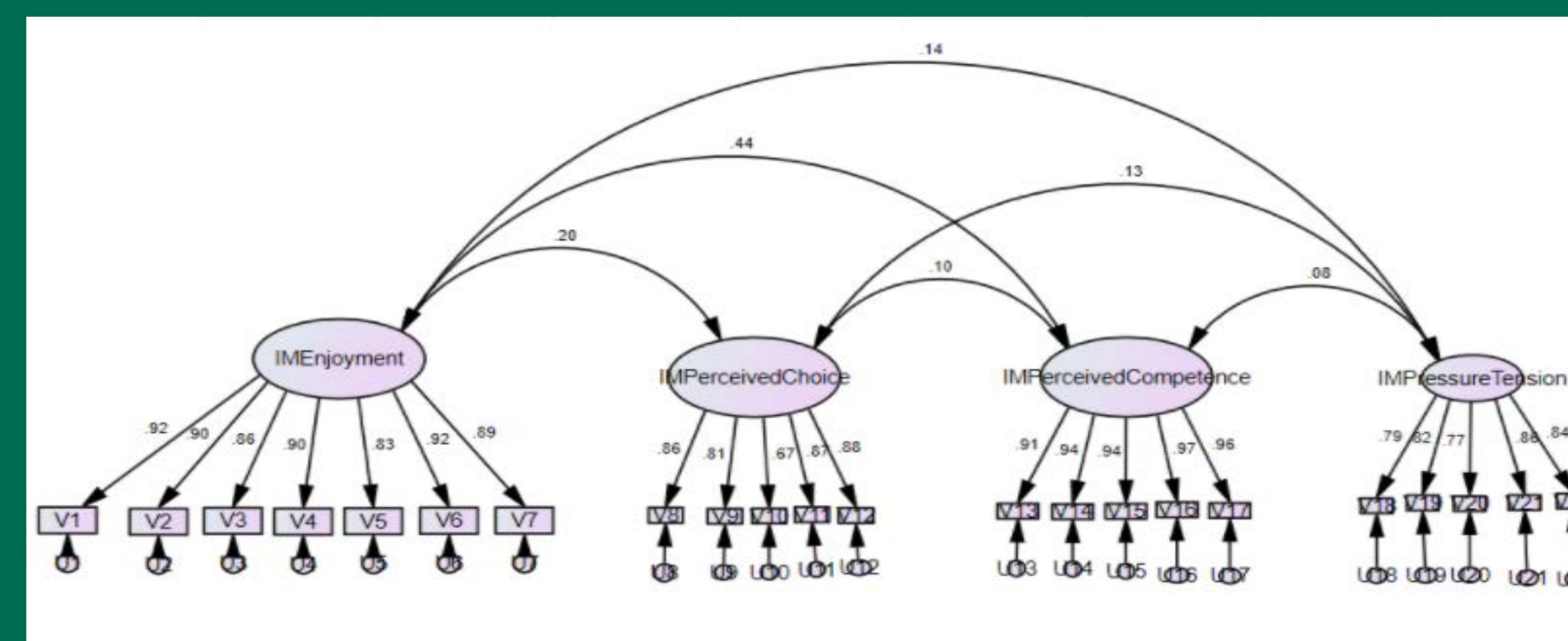


Figure 3
First Order Four Factors Correlated Model

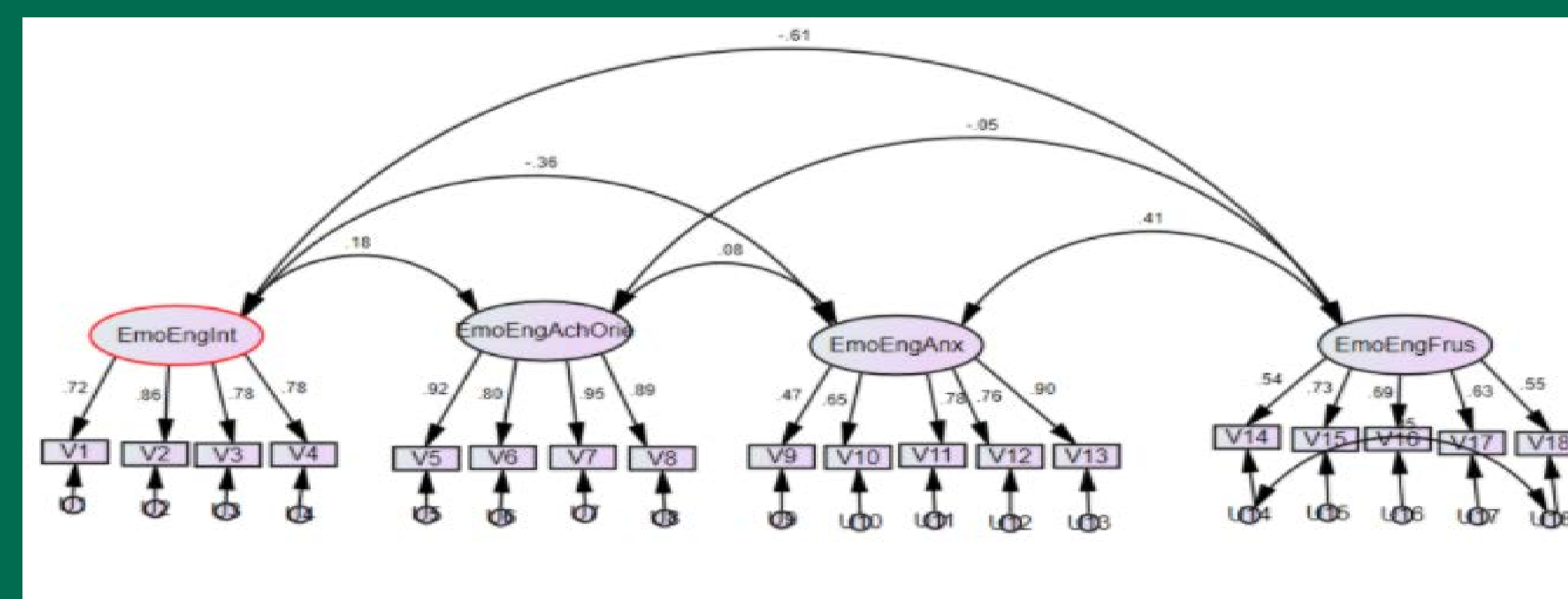


Figure 4
First Order Two Factors Correlated Model

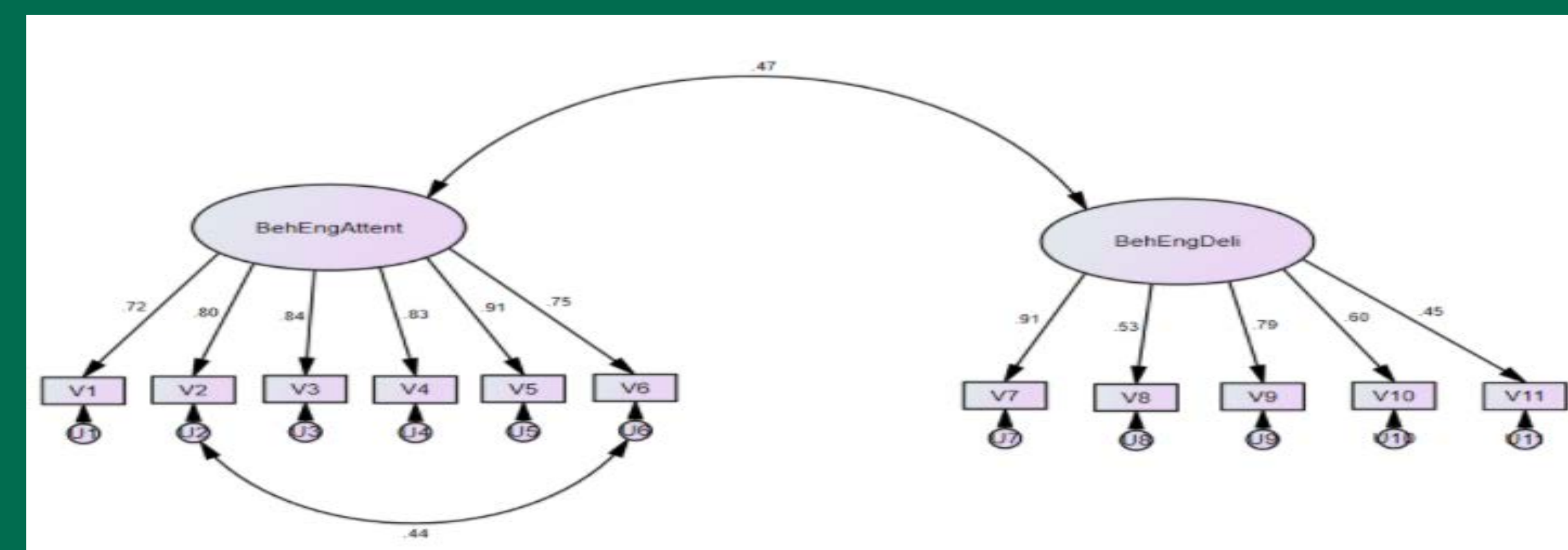
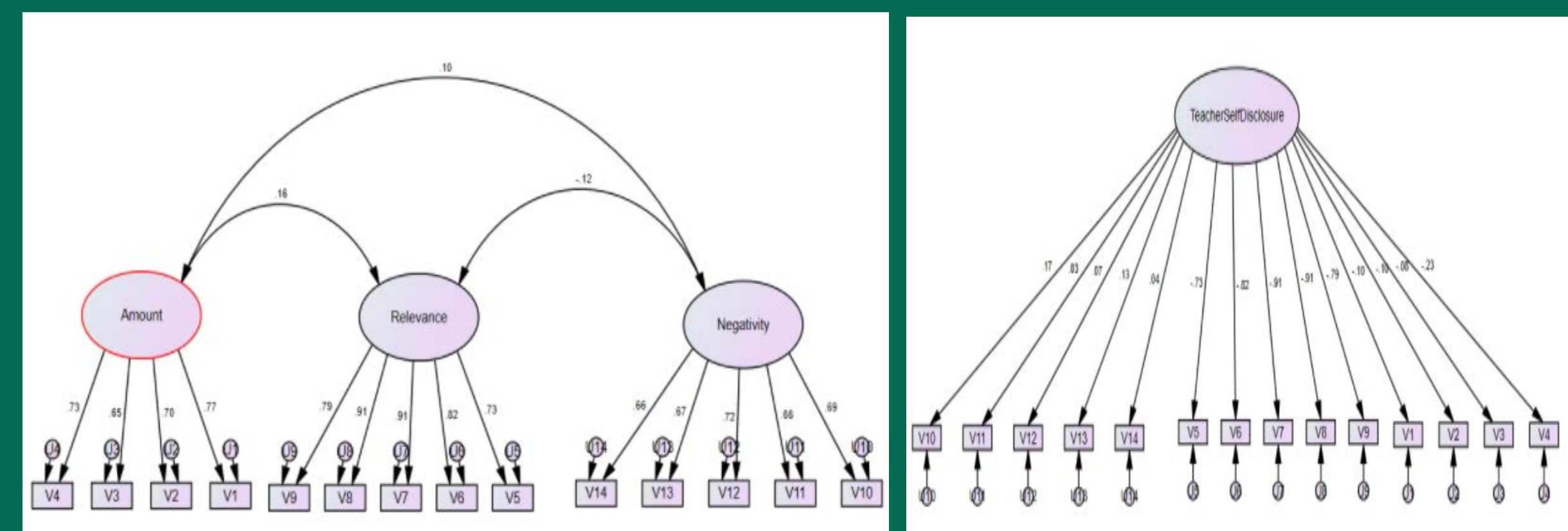


Figure 5
First Order Four Factors Correlated Model



CFA results for Situational Interest Study by Linnenbrink-Garcia (2010) showed the significance of using First Order Three Factors Correlated model (Figure1). Initial results showed that this model is plausible for the data.

CFA results for Intrinsic Motivation Monteiro (2015) suggested that Bi-factor model presented best fit indexes. However, initial CFA analysis comparing Bi-factor and First Order Four Factors Correlated model (Figure2) showed that it is plausible for the data.

CFA results for Emotional Engagement The study by Kong et al. (2003) presented correlations between different factors of Emotional Engagement which supported opting for a First Order Four Factors Correlated model (Figure 3) which showed good fit indexes.

CFA for Behavioral Engagement The study by Kong et al. (2003) showed the correlation between different factors of Behavioral Engagement supported opting for a First Order Two Factors Correlated model (Figure 4) which showed good fit indexes.

CFA results for Teacher Self Disclosure Besides the study by Cayanus and Martin (2008) that resulted the Teacher Disclosure Survey, there are no available studies focusing on CFA on teacher self disclosure. Hence, different models were tested (Uni-dimensional, Bi-factor, and Second order). First Order Three Factors correlated model (Figure 5) showed best fit indexes.

Discussion

- The CFA analysis afforded the researcher to find the best plausible model for the data for each of the constructs being investigated.
- For the factor, Teacher Self Disclosure, a suitable CAF was discovered in light of lack of available literature.
- The CFA analysis will lead to the creation of a suitable SEM model, which is a multivariate statistical analysis technique, that will allow analyzing the structural relationships between the latent constructs and latent variables of the study (De Carvalho & Chima, 2014).

Implications

- It is expected that results obtained from this study will generate recommendations associated with teacher self disclosure.
- Findings will contribute to the development of teaching and learning within STEM courses at higher education levels.

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