

The effect of Intellectual Stimulating Leadership, Collaboration and Decision Making on Teacher Perceptions in non-university Higher Education. A Structural Equation Model. (0068)

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Aims

During the last decades in several European countries the relation between university and non-university institutes for higher education changed (Kyvik, 2004; Kyvik & Skodvin, 2003; Witte, Wende, & Huisman, 2008). One of the issues was whether non-university institutes should be involved in research activities and what these activities should consist of. Goals for research on top of teaching are stated, and executives put pressure on the teaching staff to raise their academic qualification (Kyvik, 2004). This study investigates what the possible influence is of the lowest educational executives on the perception of teachers on new innovative goals.

For this study a model by Witziers, Sleegers and Imants (1999) on leadership is used. This model was previously empirically studied outside higher educational settings (Geijsel, Sleegers, Van den Berg, & Kelchtermans, 2001; Geijsel, Sleegers, Stoel, & Krüger, 2009).

Research Questions:

- 1) Is the model of Witziers, Sleegers and Imants (1999) applicable to non-university higher education?
- 2) What is the effect of Intellectual Stimulating Leadership, Collaboration and Decision Making on teachers' perceptions of goals for research?

Sample

The data used in this study are a subset of data from a larger study on research related topics among all employees of six regionally spread Dutch Universities of Applied Sciences (N=1053, response ratio=20%).

Instruments

The research instruments of Geijsel et.al (2001; 2009), which were based on the model of Witziers, Slegers and Imants (1999), were adjusted for use in the Dutch higher educational situation. The instruments:

- Intellectual Stimulating Leadership (6 items): teachers' individual perceptions of intellectual stimulation by their direct executive,
- Participation in Collaboration (9 items): the extent to which teachers experience professional collaboration, and
- Participation in Decision Making (7 items): the extent to which teachers experience that they participate in school's decision making regarding issues of education, innovation and school improvement.

New scales based on previous studies by Griffioen and De Jong (2007, 2008, 2010, to be published) were developed to measure the perception of teachers on the importance of three different Goals for Research:

- External Innovation Goals (4 items): the improvement of businesses and social organizations,
- Educational Goals (2 items): the improvement of UAS education, and
- Theoretical Goals (4 items): the contribution to theory.

The 32 variables in the research model were operationalized as questionnaire items, scored on a Likert-4 scale.

Analysis

The data were screened for nonresponse by using SPSS. A two-step full Structural Equation Procedure was used to fit the data to the model. Step 1 consists of establishing a measurement model (Figure 1 with only two headed arrows between all factors) which was fitted to the 32 x 32 variance-covariance matrix of all items. The path model of figure 1, which is based on earlier research of Geijsel et al. (2001, 2009) is added in step 2. This model is then trimmed step-by-step by removing the smallest non-significant effect of the path model (confidence interval of 98% used) and then comparing CHISQ-differences between models. The model that deviates significantly ($p < .05$) from the model before will be rejected. The most parsimonious accepted model is used as the final model. For both steps, structural equation modelling is applied, using the software application Mx (Neale, 2009). In evaluating individual models, a RMSEA value of lower than .08 indicate satisfactory fit, and values lower than .05 indicate close fit (Kline, 2005).

Results

The descriptive results show that teachers have a somewhat positive mean opinion on the intellectual stimulating qualities of their direct executive, as well as on the Participation in Collaboration and Participation on Decision Making. The teachers find the three goals for research fairly important.

The measurement model of six factors provides good approximate fit to the data ($\chi^2 = 1812.99$, $df = 449$, $p = < .05$, $RMSEA = .054$) and is used for further analysis.

After introducing the structural relations and trimming, the model fit did not significantly worsen ($\Delta\chi^2 = 5.84$, $\Delta df = 5$, $p = .32$) and overall fit of the final structural model was satisfactory ($\chi^2 = 1818.84$, $df = 454$, $p < .05$, RMSEA=.053). The results (see figure 1) replicate the results of previous research and therefore confirm the model in the higher educational setting.

Educational and scientific relevance

When the context of the teachers' work changes because of innovations, the question arises how the conditions of an innovation can positively be influenced, for instance by a direct executive, since they are usually important carriers of educational innovations.

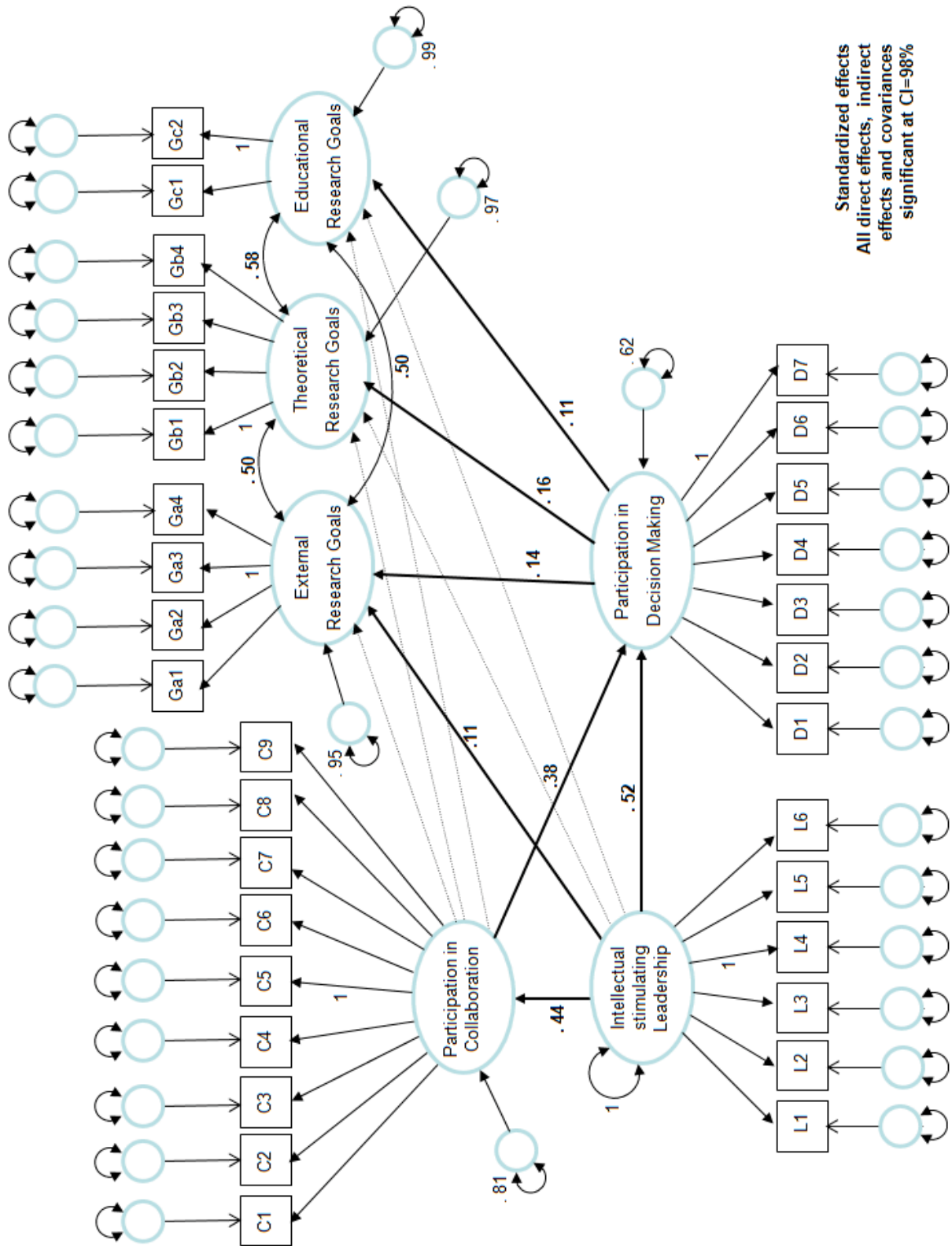
The results show that on the first question the three scales on Intellectual Stimulating Leadership, Participation in Collaboration and Participative Decision Making hold as latent factors in a confirmatory factor analysis in the most parsimonious measurement model possible. Therefore it can be concluded that in educational changing contexts the used relations form a model to consider for future research. It can also be wise to study the aspects of this model further in practise to see whether it is advisable to professionalize lowest educational executives on aspects of intellectual stimulating leadership.

The results on the second research question show that an intellectual stimulating executive can only positively directly influence the perception of teachers on the External research goals, and not on the Theoretical or Educational goals. In future research the question should be answered why this is the case, and also what new variables can enlarge the small explained variance. From previous research can be expected that self-efficacy (Geijsel, et al., 2009; Griffioen & de Jong, Submitted), involvement in research activities (Griffioen & de Jong, Submitted), and also the educational level of the teacher can possibly explain a larger part of these factors.

In total, intellectual stimulation by the lowest executive can increase participation in decision making and collaboration by teachers in all levels of education. With a higher amount of participation more 'organic' educational organizations could be created, which are more open to innovation and change (Rowan, 1990). The current model shows only a slight influence of intellectual stimulation in non-university higher education on the perception of teachers in innovation goals.

Literature

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Standardized effects
All direct effects, indirect effects and covariances significant at CI=98%

Figure 1: The start model 1 (all arrows) and the final model 6 (without dotted arrows)