Creativity and positive emotions in studying: Novel possibilities for improving students’ learning

Conference or Workshop Item

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The hypothesized and alternative models were tested using structural equation modeling as implemented in LISREL 8.8. In all models, positive affect and use of creative cognition were defined as latent variables.

Four competing structural equation models were estimated:

1. The stability model (Model 1) specifies temporal stability between semester 1 positive affect and semester 2 positive affect and between semester 1 use of creative cognition and semester 2 use of creative cognition as cause and effect (or as cross-sectional correlations between positive affect and use of creative cognition).

2. The causality model (Model 2) has paths identical to the stability model (Model 1) but additionally includes a cross-lagged structural path from semester 1 positive affect to semester 2 use of creative cognition.

3. The reversed causality model (Model 3) has paths identical to the stability model (Model 1) but additionally includes a cross-lagged structural path from semester 1 use of creative cognition to semester 2 positive affect.

4. The reciprocal model (Model 4) has paths identical to the stability model (Model 1) but additionally includes cross-lagged structural paths from Model 2 and Model 3.

The four models were compared by means of the chi-square difference test. The fit of each model was evaluated based on the following indices for satisfactorily fit: the Comparative Fit Index (CFI) and the Non-Normed Fit Index (NNFI) with the cutoff point of .95, the Standardized Root Mean Square Residual (SRMR) with the cutoff point of .08, and the Root Mean Square Error of Approximation (RMSEA) with the cutoff point of .08 (Hu & Bentler, 1999).

Results

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>RMSEA</th>
<th>CFI</th>
<th>NNFI</th>
<th>SRMR</th>
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<tbody>
<tr>
<td>Model 1</td>
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<td>0.03</td>
<td>0.96</td>
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<td>Model 2</td>
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<td>0.97</td>
<td>0.93</td>
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<td>0.01</td>
<td>0.98</td>
<td>0.95</td>
<td>0.07</td>
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<tr>
<td>Model 4</td>
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<td>0.05</td>
<td>0.96</td>
<td>0.93</td>
<td>0.08</td>
</tr>
</tbody>
</table>

The causality model (Model 2) was superior to the stability model (Model 1) (Delta $\chi^2(1) = 5.3, p < .05$). The reversed causality model (Model 3) failed by a small margin to outperform the stability model (Model 1) (Delta $\chi^2(1) = 3.8, p < .05$). Finally, the reciprocal model (Model 4) was superior to the causality model (Model 2) (Delta $\chi^2(1) = 9.67, p < .001$), the causality model (Model 2) (Delta $\chi^2(1) = 4.37, p < .037$), and the reversed causality model (Model 3) (Delta $\chi^2(1) = 5.67, p < .015$), implying that both the cross-lagged path from semester 1 positive affect to semester 2 use of creative cognition and the cross-lagged path from semester 1 use of creative cognition to semester 2 positive affect are significant. In all, the hypothesized reciprocal model (Model 4) is the best fitting of the four models.

Conclusion

Despite its limitations, the present study is the first one to establish the reciprocal relationship between positive affect and use of creative cognition in educational settings. Moreover, it provides a preliminary framework for designing interventions aimed at improving students’ positive affect in studying by stimulating their use of creative cognition in studying.