



Do motivational messages predict motivation to learn and performance?

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Abstract

Teachers can use motivational messages during classes to engage their students in school-tasks. These messages are characterized by both the frame (gain-framed vs loss-framed) and by the motivational appeals within them (external, introjected, identified, and intrinsic). For example, teachers can rely on gain-framed intrinsic messages such as *“If you work hard, you will learn interesting facts”* or they can rely on loss-framed extrinsic messages such as *“Unless you work hard, you will get into trouble”*. The present study examines how teachers’ motivational messages relate with student’s motivation to learn and performance. A total of 1209 students between grades 8 and 12 participated in the study. Participants completed self-report measures of teachers’ motivational messages and motivation to learn. Performance was measured using students’ grades obtained from school records. We performed a multilevel structural equation model (ML-SEM) to test the hypothesised relations among variables. ML-SEM showed that teacher motivational messages indirectly predicted student’s performance via motivation to learn. The present findings highlight a resource teacher can rely on to motivate students and improve their academic outcomes. These results set the basis for future educational interventions targeting teaching practices.

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“*If you work hard you will learn interesting facts*”, “*Unless you work hard you will get into trouble*”. These are examples of messages that teachers use to encourage student engagement. Reading these messages carefully, we can notice that they appeal to different kinds of motivations and that they are framed differently: gain-framed messages highlighting positive consequences and loss-framed messages highlighting negative consequences. In educational contexts teacher messages have shown to be relevant for student outcomes (Author, 2019). Yet, there is no instrument that measures teachers’ motivational messages attending to both the frame and the motivational appeals.

The present work aims to expand on previous existing measures of teachers’ messages and examine how such messages relate to students’ motivation to learn and performance. Thus, we develop a new instrument to measure teachers’ motivational messages, based on the [masked for peer review] Author, 2019). This new measure approaches integrates both the Message Framing Theory (Rothman & Salovey, 1997), and Self-Determination Theory (Ryan & Deci, 2020). Following Busemeyer's (2017) and Gigerenzer's (2017) recommendations, it is essential to seek the integration of distinctive theories to better understand the problem under study. Thus, the following work integrates both theories to enhance the study of teachers’ messages as both theories could complement each other and counteract their weaknesses. To pursue our objectives, we examined the psychometric properties of the scale and then examined relations between teacher’s messages, students’ motivation to learn and performance.

Method

Participants

1209 students (600 female, 18 *not reported*; Mean age = 15.86, *SD* = 1.45) between Grades 8 and 12 participated in the study. Students were drawn from 63 classes from ten secondary schools.

Measures

To measure teachers’ messages, we developed an instrument composed of a total of 36 items grouped into 9 factors. Eight of the factors corresponded to four types of self-determined motivation (intrinsic, identified, introjected, and external) and its frame (gain vs. loss). The ninth factor was amotivation. Motivation to learn was measured

using five subscales of the *Échelle de Motivation en Éducation* (Author et al., 2005): amotivation, external motivation, introjected motivation, identified motivation and the subscale of intrinsic motivation towards knowledge/understanding. Students' performance was measured using students' grades obtained from school records.

Analytic Approach

To examine the factor structure of the scale developed, we conducted a multilevel confirmatory factor analysis (CFA) where the hypothesized model was tested against plausible alternates. To test if teachers' messages predict student's motivation to learn and performance, we estimated multilevel structural equation models (ML-SEM) for each kind of message. Separate models for messages were run to keep models as parsimonious as possible (Hox & McNeish, 2020). To such end, factor loadings were also made constant across levels (Morin et al., 2014). L2 variables were built from the class aggregation of student responses and L1 variables were class-mean centred (Marsh et al., 2012).

To test whether teacher's messages had a direct or indirect relation with student performance fully and partially indirect ML-SEMs were tested and compared. For the fully indirect model, relations between variables followed the paths shown in Figure 1, whereas the partially indirect model included a direct path between teacher's messages and students' performance.

Results

CFA

The hypothesized nine-factor model showed a better fit than plausible alternates ($\chi^2=183.427(1208,1143)$; RMSEA=.028; CFI=.971; TLI=.968; SRMR-w=.049; SRMR-b=.138)

ML-SEM

Fully indirect ML-SEMs showed model fit indices that were either comparable to, or superior to the partially indirect models. Fully indirect ML-SEMs were retained given their greater parsimony (see Table 1). In general terms, teachers gain-framed messages positively predicted student motivation and this, in turn, positively predicted performance. Regarding loss-framed messages, most types of messages positively predicted motivation whereas amotivation negatively predicted performance.

Discussion

The present study conceptualizes a new resource that teachers can rely on to face student disengagement and amotivation. Two major conclusions can derive from the present results. First, the scale developed demonstrated to accurately measure teachers' motivational messages. Second, teachers' messages predict student's motivation to learn and this, in turn, predicts students' performance. Given the teachers ability to motivate students, these findings could help teachers find new ways to keep doing so. As previous research highlights (Author et al., 2014), most teachers are unconcerned about the type of messages they use during their lessons and, may be unaware of effects they might trigger among students. School-based interventions could be helpful to instruct teachers about the different messages and their effect on students. As a starting point, the present scale could be used to help teachers recognize their messages. Given the negative effects some kinds of messages might prompt, it might be advantageous to advise teachers of what exact messages they could rely on. This kind of interventions could be very easily implemented in schools as they are simple, cheap and do not require much time or expertise.

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