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Title Interrelationships between students' approaches to learning, perceptions of learning environments and academic performance in an African context

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Theoretical background

Marton and Säljö (1976) proposed a framework on students' approaches to learning (SAL). Instruments to assess the way students go about their learning were developed in both Europe and Australia (Biggs, 1987; Entwistle & Ramsden, 1983). Students' approaches to learning (SAL) are commonly conceptualized in terms of deep, surface and achieving or strategic approach. It has been shown in the literature that with respect to their perceptions of the learning environments, learners adopt different approaches (Pottier et al., 2008) and also that performance of learners depends on both learning approaches as well as their perceptions (Asikainen, Parpala, Lindblom-Ylänne, Vanthournout, & Coertjens, 2014; Lizzio, Wilson, & Simons 2002). In general, positive perceptions are associated to deep approaches, while negative perceptions seem to be related to surface approaches (Bliuc, Ellis, Goodyear, & Hendres, 2011a, 2011b; Kyndt, 2011; McCune & Entwistle, 2010). Students' perceptions of learning environments mediate the relationships between learning approaches and learning outcomes (Entwistle & Peterson, 2004). Learning approaches and perceptions have repeatedly been demonstrated to be context dependent variables (Lizzio, Wilson, & Simons 2002). So, cultural factors were mentioned in several studies as explaining students' differences in learning (Kember, 1996; Marambe, Vermunt, & Boshuizen, 2012). In view of valid conclusions, instruments need adaptation to fit respondents' culture across settings (e.g. Gijbels, Van de Vattering, Dochy, & Van den Bossche, 2005). Given that (a) in an African context only few studies investigated SAL, perceptions and learning outcomes in one analysis (Mogre & Amalba, 2014); (b) there is a lack of instruments and studies on SAL and perceptions in African French speaking contexts; (c) researchers call for exploration of SAL in various cultural settings (e.g. Leung, Ginns, & Kember, 2008), and (d) instruments stemming from Anglo-Saxon context do not seem to be reliable in DR Congo, the current study constructed new (contextual and valid) instruments and subsequently used them in a Congolese setting to address the relationships between students' SAL, their perceptions of the learning environments (teaching and course) and their learning outcomes.

New instruments development

Semi structured interviews (10 students) followed by cognitive interviews (10 students) were used to elaborate items. New instruments were constructed to assess SAL (59 items), perceptions of teaching (43 items) and perceptions of the course (17 items).

The three instruments were piloted with a group of 153 students. Exploratory factor analysis revealed 4 scales for the Approach instrument: Studying in group (11 items), Studying by Testing (13 items), Elaborative Studying (6 items), and Receptive Studying (3 items). For Perceptions of Teaching two scales were identified: Learner-centered (20 items) and Teacher-centered (11 items). Two scales made up the Perceptions of the Course questionnaire: Functional Course (11 items) and Academic Course (6 items). All scales were found to be reliable (Alpha of Cronbach from .71 to .93)

Main study

The questionnaire were administered during course time, 258 management students (126 males and 132 females) participated .

Relationships between students' characteristics (gender and prior performances) and SAL on the one hand and their perceptions of the learning environments (Perceptions of teacher and course) on the other hand were analyzed using correlation analysis and MANOVA. Regression analysis supported the exploration of the relationships between SAL and perceptions, and also the relation of both variables and the academic performances (Students' marks in statistics exam).

Results

It is shown that (a) males and females do not differ in terms of neither SAL ($F(8, 346) = .764$, $p = .635$) nor perceptions of the learning environments (Perceptions teaching and course) ($F(8, 324) = .629$, $p = .753$); (b) students' prior performance does not correlate with neither SAL ($p > .05$), nor perceptions of the learning environments (Teaching and course) ($p > .05$); (c) learning outcomes do relate to neither SAL nor students' perceptions of the learning environments (Teaching and course) (β as well as F values non-significant, $p > .05$), and (d) students' perceptions of the learning environments (Teaching and course) contribute significantly to explain 12% of variance for studying in group, 19% for studying by Testing, 28% in Elaborative studying, and 10% for Receptive studying.

Conclusions

The current paper contributes to the literature in two ways. The new instrument assess SAL as the combination of both intentions and strategies (Biggs, Kember, & Leung, 2001). Two questionnaires measure students' perceptions in terms of their representations of the learning environments (Lizzio et al., 2002). In this perspective, they are similar to previous instruments assessing both variables (Biggs et al., 2001, Lizzio et al., 2002). Unlike those tools, our questionnaires are meant to be context-specific, they are grounded in students' discourses. Not surprisingly they are specific and deviate from existing tools. However, it should be mentioned that the related scales have some premises in the literature. Learning in group scale for instance reveals the relevance of cooperative learning (Kyndt, Raes, Lismont, Timmers, & Dochy, 2013). Furthermore, spontaneous collaborative learning as an approach to learning was mentioned by Tang (1993). So, these findings foster the current view of SAL by incorporating a group dimension.

A relation between academic performances (prior and current) and neither SAL nor their perceptions of the learning environments was retrieved. This corroborates studies that question the effects of SAL on learning outcomes by pointing to the quality of instruments (Duff, 1997). Similarly, prior performances were mentioned as the best predictor of the academic achievement compared to students' scores in SAL instrument (Provost & Bond, 1997).

While we found effects of students' characteristics on neither their approaches nor perceptions, our findings confirm that SAL are influenced by students' perceptions of the learning environments (Coertjens, Vanthournout, Lindblom-Ylänne, & Postareff, 2016; Parpala, Lindblom - Ylänne, Komulainen, & Entwistle, 2013). The interrelationship between approaches and perceptions seems to be independent from instruments and cultural contexts. However, further studies of validation of the new tools by investigating data from a large sample of students from various universities within and across Congolese regions (McSweeney, 2002) are strongly recommended.

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