AN EMPIRICAL MODEL OF PERSONAL SELF-REGULATION AND TEACHING REGULATORY, TO PREDICT THE PROCESS AND THE PRODUCT VARIABLES

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RESUMEN/ABSTRACT

Introduction. The present study examines how personal self-regulation and regulatory teaching relates to learning approaches, strategies for coping with stress, and self-regulated learning (as *process variables of learning*) and, finally, how it relates to performance and satisfaction with the teaching-learning process (as *product variables*). In this investigation, we built two different empirical models based on the presage-process-product paradigms to clarify potential effects of (1) personal self-regulation and (2) regulatory teaching with other cognitive-emotional variables.

Method. A total of 1101 students participated in the study (University of Almería and competitive students). In terms of data collection, it is a survey investigation using self-reports (questionnaires and scales) and a cross-sectional strategy. The analyses made to meet the proposed objectives and test hypotheses were structural for develop structural models.

Results. The results provide empirical evidence for two models, consistent and significant, integrating variables that are part and influence the teaching-learning process of this educational level (university and candidates).

Discusion and conclusion. Findings confirming the importance of the interactive, integrative model of teaching-learning (DEDEPRO), which assumes that self-regulated learning should be connected to regulatory teaching. Variables incorporated into the models validated in this study consolidate the idea that both personal factors and teaching and learning factors should be taken into consideration, since we are dealing with a formal context of teaching-learning.

Palabras Clave: Teaching-Learning process, Personal self-regulation, Regulatory teaching, Empirical model, Higher education

1. INTRODUCTION

University education is undergoing a profound process of change, and the main exponent of this change is the European Higher Education Area (EHEA). The sweeping innovations driven by the creation of the EHEA have brought about new demands for both teachers and students, many of which are the product of a restructuring of the teaching-learning process (Biggs, 2001; Elliot & Dweck, 2007; Entwistle & Peterson, 2004). In this process, students take on a more active role in constructing their own learning, and teachers must contribute to the construction of their learning by advising, orienting and helping them resolve difficulties that arise along the way (De la Fuente & Justicia, 2007).

The work presented here have a aim objectives: "To build an empirical model of consistent relationships that establish conceptual relations between the *learning process* variables: determining how student presage variables (personal self-regulation), relate to process variables (coping strategies, approach to learning, self-regulated learning strategies) and product variables (performance and satisfaction); and the *teaching process* variables: determining how presage context variables (contexts of university education and preparation for competitive examinations) are related to and interact with these student presage, process and product variables". In order to meet this objective, we follow the DEDEPRO Model (De la Fuente, 2011; De la Fuente & Justicia, 2007), which is created from Biggs' 3P Model (Biggs, 2001) as a model that attempts to explain the teaching-learning process (De la Fuente & Justicia, 2007).

2. PERSONAL SELF-REGULATION AS A PRESAGE VARIABLE

Personal self-regulation refers to the capacity or ability to control our own thoughts, emotions and actions. We can therefore affirm that personal self-regulation is a vital process that allows people to behave adequately, carry out tasks properly, and abstain from activities that may be harmful to their own livelihood (Baumeister & Heatherton, 1996). Self-regulation is used in a number of processes including the regulation of emotions, thoughts and actions for physical or behavioral control or restraint (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Vohs & Baumeister, 2011).

Within Miller and Brown's theoretical model for addictive behaviors (Miller & Brown, 1991), it is assumed that self-regulation is developed through seven successive processes: 1) *Informational input* (self-observation); 2) In *Self-evaluation*; 3) *Instigation to change*; 4) *Searching for options*; 5) *Formulating a plan*; 6) *Implementing the plan,*; 7) *comprehensive assessment,* If there is a deficit in any of these self-regulation processes, one's behavior regulation will suffer. Within this theoretical framework, Brown (1998) defines self-regulation as a person's ability to "plan, monitor and direct his or her behavior in changing situations" (p.62), adopts the self-regulation postulates of Zimmerman (2002).

Prior studies have shown that self-regulation has a significant role in health as well as in success, whether academic or work-related (Karoly, Boekaerts & Maes, 2005; Vancouver & Scherbaum, 2008). We can think of the process of self-regulation as having a personal, behavioral and contextual nature (Bandura, 1986; Torrano & González, 2004), adding goals as a key factor (Latham & Locke, 2007; Winne, 2004). Taking personal regulation as a presage variable in the sphere of educational psychology, De la Fuente and Cardelle-Elawar (2011, p. 3) define it as a student variable "that determines the level of effort that students will sustain in the process of active learning for the completion of a given task". It is widely recognized as the means by which students transform their mental skills into problem solving survival skills (De la Fuente & Cardelle-Elawar, 2011).

3. APPROACHES TO LEARNING, COPING STRATEGIES AND SELF-REGULATED LEARNING AS A PROCESS VARIABLES

We have seen that the aim objective is the building of an empirical model of consistent relationships that establish conceptual relations between the *learning process* variables: determining how student presage variables (personal self-regulation), relate to process variables (coping strategies, approach to learning, self-regulated learning strategies) and product variables (performance and satisfaction); and the *teaching process* variables: determining how presage context variables (contexts of university education and preparation for competitive examinations) are related to and interact with these student presage, process and product variables. For this reason next we will do a brief summary about the three different process variables that for part of this investigation: approaches to learning, coping strategies and self-regulated learning.

Approaches to learning

Biggs (2001) defined learning approaches as the learning processes that emerge from students' perceptions of the academic task, and influenced by their personal characteristics. Inside the 3P (Presage-process-product) Model (2001, 2005) Biggs (1989, 1990) determine two learning approaches: 1) surface approach, that students are motivated instrumentally, pragmatically or extrinsically, and their main purpose is to meet the course requirements with the least effort. Thus, learning becomes a balancing act between avoiding failure and not working too hard and; 2) deep approach, that students are intrinsic motivation to understand and to enjoy learning. Thus, they adopt strategies that are most likely to help them satisfy their curiosity and their search for inherent meaning in the task. In recent decades there has some research on approaches to learning (Sander, De la Fuente, Martínez-Vicente & Zapata, 2012). One line of research seeks to establish the relationship between learning approaches and academic achievement.

Coping strategies

We find ourselves at a very complex time socially, when the word stress plays a leading role in day to day life, and has become a familiar concept. When we speak about coping we refer to cognitive and behavioral efforts to manage stress (DeLongis, Holtzman, Puterman, & Lam, 2010).

Holroyd and Lazarus (1982) define coping as "cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands that are created by the stressful transaction" (p. 843). Lazarus (1991) defines coping as "cognitive and behavioral efforts to manage specific external or internal demands (and conflict between them) that are appraised as taxing or exceeding the resources of a person" (p. 112). There are a variety of coping strategies that have been proposed by researchers in order to understand the discrepancies in how individuals act when dealing with stressful situations. We proceed now to discuss different coping strategies and the theories that study them (Hobfoll & Schröeder, 2001; Lazarus & Folkman, 1986). Coping strategies refers to behavioral and cognitive efforts that a person makes in order to deal with stress. In other words, these are strategies that one turns to in order to deal with either the external or internal demands that generate stress, as well as with the psychology discomfort that usually accompanies them (Sandín, 1995).

Coping strategies in the context of Educational Psychology are more related to academic stress and specifically to one of its main stressors, tests (Piemontesi & Heredia, 2009). We consider it of vital importance to inquire into coping strategies, since all university students must face the external stressor of tests, as well as others. We must also keep in mind that university students are a very specific population, as are the ways that they deal with stress. Hence, the importance of introducing this variable in the present research study, as mentioned above. Fewer studies have been carried out

in this field, but relationships have been found between coping strategies and academic performance (Cohen, Ben-Zur & Rosenfeld, 2008) and student gender (De la Fuente, Cardelle-Elawar, Martínez-Vicente, Zapata & Peralta, 2013). In addition, students' levels of stress have been studied in conjunction with the coping strategies they use (Ticona, Paucar & Llerena, 2010).

Lazarus and Folkman (1986) consider one distinction to be extremely important: the difference between coping that is directed toward handling or altering the problem (*problem-directed coping*), and coping aimed at regulating the emotional response that the problem brings about (*emotion-directed coping*). The relevance of the present study is due to a lack of research on coping strategies in conjunction with other variables of Educational Psychology, such as learning approaches, performance and satisfaction with learning.

Self- regulated learning

The concept of self-regulated learning is emerging more from day to day, due to its great importance in the teaching-learning process. Specifically, this construct refers to a self-directing process in the students, transforming their mental ability into academic skills. Self-regulation is thus considered a proactive activity where the student takes the lead in helping himself, as well as developing learning strategies. For the definition of this variable, we must bear in mind the active role of students in the learning process, the feedback given to them during this process, and the role of motivation (Zimmerman & Labuhn, 2012).

Researchers who study this variable suggest that students self-regulate when they take an active role, at the metacognitive, motivational and behavioral levels, in their teaching-learning process (Zimmerman, 1989). All the definitions that are given to self-regulated learning include these three properties, which allow students to be aware of their own learning process and of the importance of improving their academic performance. But these are not the only components in the definition of this construct, we also find what are known as feedback loops during learning (Carver & Scheier, 2000; Winne & Hadwin, 1998; Zimmerman, 1989, 2000). This refers to a cyclical process by which students direct the effectiveness of their learning methods or strategies to respond to feedback, with non-visible changes in self-perception as well as visible changes in behavior. The concept of self-regulated learning is a description of how and why students choose to use a self-regulated process in particular, a strategy or a response. The vast majority of researchers are in agreement that motivation has a role in prompting these results.

Sociocognitive theory emphasizes the interaction of personal, behavioral and environmental factors in self-regulated learning (Bandura, 1997; Zimmerman, 2002). These factors normally change during learning and must be monitored, hence self-regulation is considered to be a cyclical process. This cyclical nature is represented in Zimmerman's three-phase self-regulation model (Zimmerman, 1998): 1) *Forethought phase*: A prior phase that refers to processes that prepare the scenario for action, giving thought to processes that occur during learning and that affect attention and action. During this initial phase, there are two different areas: task analysis processes and self-motivation beliefs; 2) *Performance control phase*: Two major classes of self-regulation processes are postulated during this phase: self-control and self-observation; 3) *Self-reflection phase*: This phase takes place after execution; students respond to the efforts they have made, where greater effort compensates for fewer self-regulation processes throughout the different phases (Zimmerman & Labuhn, 2012).

4. REGULATORY TEACHING A CONTEXT THAT BUFFERS STRESS AND PROMOTES SELF-REGULATED LEARNING

Regulatory teaching is a concept that is included in effective teaching. For this reason we can give a definition about it. *Effective teaching* involves establishing a teaching and learning context

such that students have all the necessary stimuli for responding with the level of cognitive engagement required by the teachers' proposed objectives. This has several aspects: motivation, atmosphere and promoting specific teaching and learning activities (Biggs, 2005). Biggs (2005) defines good teaching as "getting most students to use the higher level cognitive processes that the more academic students use spontaneously" (p. 99). The new scenario of education (*European Higher Education Area*) can become a stressful context for students due to its novelty and the demands of learning by competencies (De la Fuente, Justicia, Canovas & Trianes, 2004). For this reason, we point the possible influence of regulatory teaching as a stress-buffering context out. Moreover, this context can also act to promote self-regulated learning. These functions of buffering and promoting are reflected in the DEDEPRO Model, which incorporates this new integrative perspective of teaching-learning processes (De la Fuente, 2001; De la Fuente & Justicia, 2000, 2007; De la Fuente & Martínez-Vicente, 2004).

Regulatory teaching is a process variable in Biggs' Model (2001) and in the DEDEPRO Model (De la Fuente, 2011; De la Fuente & Justicia, 2007). It refers to teaching efficacy, involving adequately structured teaching and assistance in order to facilitate and induce self-regulated learning (Kramarski & Michalsky, 2009). By this we refer to the idea that the teacher should know how to "other-regulate" the learning process in order to contribute to students' "self-regulation" of the learning process; thus, a strong component of self-regulation is required when teaching (Randi, 2004). De la Fuente and Justicia (2003) understand that a teaching process is regulatory when the activities of teaching, learning and assessing are intrinsically interrelated in the achievement of autonomous, constructive, cooperative and diversified learning. This type of regulation in teaching is produced at the two levels of regulation, that is, it is an equally valid principle for specific things learned (micro-regulation) and for learning overall (macro-regulation). Thus, the teacher tries to teach and to get the students to learn in a specific manner, not in a uni-directional sense but interactively, depending also on how students want to or are able to learn. In the teaching process, the teacher should actively produce this type of teaching; simply being physically present in the teaching-learning process is not enough, the teacher should be able to conceptually, temporally, materially and procedurally delimit the process of teaching and learning to be followed (De la Fuente & Justicia, 2007).

De la Fuente and Justicia (2003) hypothesize a lack of regulation in teaching and learning. This may be due to the teacher not explaining important informational elements at different moments of the teaching-learning process (design and development of the syllabus), therefore students are unable to make decisions about how they should undertake their learning (García, De la Fuente, Justicia & colls., 2002). This in turn leads to a lack of correct decisions about the design and development of the learning process, students learn in an unregulated fashion, and hence have poorer performance than what they potentially could have. For this reason, as we mentioned above, *explicit activities* must be carried out with regard to the teaching process, through different continuous regulation devices (Luo, 2000; Xin, Shen & Lin, 2000), in order to improve learning processes and student's self-regulation thereof. Some of the teaching strategies that could be implemented are: (diagnostic and process) assessment, information supplied to students about the teaching process and the structuring of learning activities, and stimulation of self-regulation in students.

The foregoing leads us to stress the vital importance of this variable when planning changes and improvements in the teaching-learning process, and in the end product of learning (satisfaction and academic performance) (De la Fuente et. al., 2012). We must not forget the *facilitating role* of regulatory teaching in self-regulation of learning. As some authors have already commented (Lindblom-Ylänne, Nevgi & Trigwell, 2011), research on regulatory teaching is scarce, and the present study offers one way of moving forward in the study of this variable, opening up an area that has practically been sealed off.

5. ACADEMIC PERFORMANCE AS A PRODUCT VARIABLE

Every teaching-learning process aims toward a certain product, which is based on certain objectives and purposes that are to result in the student learning a specific subject matter. This product is called *academic performance*. Performance has been defined and categorized by different authors. Most research has analyzed performance based on a single global qualification. This tendency to reduce the outcome of learning to a single grade has become one of the main criticisms of research on academic performance. Biggs (2001) proposes an alternative to address the problem of reducing academic performance, describing the product of teaching-learning through different outcomes classified according to their nature: quantitative, qualitative and affective (satisfaction). Affective performance has been studied the least, but Locke (1976) proposed a rather widely accepted definition. According to this author, satisfaction is a pleasurable emotional state that results from the perception that certain activities are making it possible to attain values important to the student, inasmuch as these are consistent with his or her needs.

We have seen that the proposal from Biggs is not the only way to rectify the simplistic view of academic performance. De la Fuente and colleagues (De la Fuente, Justicia, Trianes & Casanova, 2004) base academic performance on a compendium of competencies: conceptual (grades achieved on exams), procedural (class attendance and lab work) and attitudinal (class participation and voluntary efforts). This new conception of academic performance corresponds to the needs of the new European Higher Education Area.

Academic performance has taken on greater importance in educational research in recent decades, with many variables being studied for their influence on the academic performance of university students. Some of these variables are approaches to learning, self-regulated learning, student attitudes, coping strategies and so on.

2. OBJECTIVES AND HYPOTHESIS

The aim objective of this research is elaborate an empirical model that establishes the relationships between the different student constructs and their learning process, also introducing the teaching process and its variables, in order to define their predictive value in performance and satisfaction with learning.

We expect to find a structural model that validates our proposed conceptual relationships. *Personal self-regulation,* especially, and goal-setting and perseverance will have a significant differential relationship with the types of *learning approaches* and *coping strategies,* and these in turn with *self-regulated learning,* which will ultimately determine *mean performance* and *satisfaction with learning. Regulatory teaching* will also have an essential role in these relations, having a positive effect on the previous relationships mentioned.

3. MATERIALS AND METHODS

Participants

A total of 1101 students participated in the study. Of these, 40.7% were students at the University of Almería (Spain) and 49.5% were preparing for competitive exams; 9.8% could not be identified in either category, since there was no indication in the data collected. Of the university students, 48.3% were pursuing a degree in Psychology, and 12.1% in School Psychology (*psicopedagogía*). The mean age was 23.08 years (SD=4.4) with ages ranging from 19 to 49. Men represented 9.3% and women 59.4%, while an additional 31.3% did not provide this information when completing the different questionnaires.

Instruments

Personal self-regulation was measured using the *Short Self-Regulation Questionnaire SSRQ* (Miller & Brown, 1991) in its Spanish version, the CAR (De la Fuente, 2003). It has already been validated in Spanish samples (Pichardo et al, in review), and possesses acceptable validity and reliability values, similar to the English version.

Learning approach was measured with The *Revised Two-Factor Study Process Questionnaire (R-SPQ-2F)* (Biggs, Kember & Leung, 2001), in its Spanish version (de la Fuente & Martínez-Vicente, 2003). The R-SPQ-2F (Biggs, Kember & Leung, 2001) contains 20 items on four subscales (Deep Motive, Deep Strategy; Surface Motive and Surface Strategy), aimed to measure two dimensions: Deep and Surface learning approaches, respectively. Students respond to these items on a 5-point likert-type scale ranging from 1 (rarely true of me) to 5 (always true of me). Justicia, Pichardo, Cano, Berbén and De la Fuente (2008) validated this questionnaire in a Spanish sample and showed a confirmatory factorial structure with a first order factor structure of two factors; they also reported acceptable reliability coefficients.

The coping strategies variable was measured using the *Escala de Estrategias de Coping* (EEC) [Coping Strategies Scale], in its original version (Chorot & Sandín, 1987; Sandin & Chorot, 2003). The scale is based on the model from Lazarus and Folkman (1986) and adapted for university students. A total of 90 items are included where students respond to items on a 4-point likert-type scale ranging from 0 (never use the strategy) to 3 (always use the strategy). This scale possesses acceptable validity and reliability values.

Self-regulated Learning (D2), regulatory teaching (D1), process variables, and Satisfaction with Learning (D3), product variable, which were assessed using the IATLP Scales (De la Fuente & Martínez, 2004, 2008). The revalidated version of this scale (De la Fuente, et al, 2012) assesses these three variables. Overall reliability of this scale is alpha=0.75 (acceptable). These three scales possess acceptable validity and reliability values.

In order to assess academic performance, we made use of the *academic-professional competencies assessment model* (De la Fuente, Justicia, Casanova & Trianes, 2004). Following this competency model, we took the mean scores that teachers assigned to the students at the end of a full-year subject. Total performance, on a scale of 1 to 10, is the final grade given to the student for this subject. The 10 points are a compendium of results obtained on the three levels of subcompetencies, conceptual, procedural and attitudinal: 1) *Conceptual scores*: includes all scores obtained on exams covering the conceptual content of the subject (4 points); 2)*Procedural scores*: assessed from the student's practical work covering procedural content and skills (4 points); 3) *Attitudinal scores*: scores given for class participation and for optional assignments undertaken for a better understanding of the material (2 points). In order to carry out the different analyses and compare the results, the different subcompetency scores were converted to an equivalent scale of 1 to 10.

Procedure

Information from self-reports was collected in the classroom during regular class from both university students and competitive examination candidates. For the university students, data on *Presage* variables (personal self-regulation, sex, age) was collected during the month of October. Later, in the month of February, students completed the scales measuring *Process* variables (learning approaches, coping strategies, self-regulated learning and regulatory teaching). In the month of May-June, satisfaction with learning was assessed, and teachers of the participating classes were asked for the mean total scores for each student, as measured through continuous assessment over the academic year (*Product* variables). Competitive examination candidates, on the other hand, completed the different questionnaires during their preparatory course. Candidates provided data on

Presage variables (personal self-regulation, sex and age) in October, and, depending on time availability, they completed the questionnaire pertaining to the Process variables (coping strategies) at some time during the course.

Design and Data Analyses

The nature of this investigation, in addressing its objectives and hypotheses, constitutes a non-experimental ex post-facto design. In terms of data collection, it is a survey investigation using self-reports (questionnaires and scales) and a cross-sectional strategy. We use AMOS program (version 16.00) for develop structural models.

4. RESULTS

A structural path analysis showed reasonable levels of fit for the two models. In the Model 1, focused in the learning process, the results were satisfactory with indices of around 0.90 and error of about 0.60. These results were given consideration through the use of absolute fit statistics, NFI= 934, RFI=954, TLI=.923, and CFI=.948, RMSEA $p<.060$ and Chi-square=98, 298, $df=22$, $p<.001$. In the model one can observe how *academic performance* and *satisfaction with learning* are jointly determined by perseverance, surface approach, emotion-focused coping strategies, self-regulated learning and regulatory teaching. Specifically, *perseverance* is the characteristic of self-regulation that, on one hand, is negatively associated with *surface approach* (SURFACE) and positively with *deep approach* (DEEP), and on the other hand, negatively associated with *emotion-focused coping strategies* (EMOTION), and positively with problem-focused coping (PROBLEM). Elsewhere, *self-regulated learning* (IATLP2) is determined negatively by *surface approach* (SURFACE) and *emotion-focused coping strategies* (EMOTION), and positively by *deep approach* (DEEP) and problem-focused coping strategies (PROBLEM). Finally, *self-regulated learning* (IATLP2) was a significant, positive determinant of *total performance* (GPA) and *satisfaction with learning* (IATLP3).

In the Model 2 was evaluated the same relation with the regulatory teaching variable. In this model the results were satisfactory with indices of around 0.90 and error of about 0.50. These results were given consideration through the use of absolute fit statistics, NFI= 938, RFI=913, TLI=.937, and CFI=.953, RMSEA $p<.050$ and Chi-square=90,243, , $df=25$, $p<.001$. In the model one can observe how *academic performance* and *satisfaction with learning* are jointly determined by perseverance, surface approach, emotion-focused coping strategies, self-regulated learning and regulatory teaching. Specifically, *perseverance* is the characteristic of self-regulation that, on one hand, is negatively associated with *surface approach* (SURFACE) and positively with *deep approach* (DEEP), and on the other hand, negatively associated with *emotion-focused coping strategies* (EMOTION), and positively with problem-focused coping (PROBLEM). Elsewhere, *self-regulated learning* (SELF-REGULATED LEARNING) is determined negatively by *surface approach* (SURFACE) and *emotion-focused coping strategies* (EMOTION), and positively by *deep approach* (DEEP) and problem-focused coping strategies (PROBLEM). Finally, *self-regulated learning* (SELF-REGULATED LEARNING) was a significant, positive determinant of *total performance* (GPA) and *satisfaction with learning* (SATISFATION). The role of *regulatory teaching* (REGULATORY TEACHING) was notable in positively determining *perseverance* (PERSEVERANCE), through learning goals (GOALS), deep approach (DEEP), *self-regulated learning* (IATLP2), *total performance* (GPA) and *satisfaction with learning* (STISFACTION), and negatively determining the use of *emotion-focused coping strategies* (EMOTION).

5. DISCUSSION AND CONCLUSIONS

Our hypotheses are confirmed, since we found two *structural models* that validate the linear conceptual relationships proposed in the present investigation. In the first model, we see that goal-

setting has a positive effect on perseverance, and the latter in turn influences learning approaches and coping strategies. Perseverance negatively predicts a surface approach, which in turn influences the deep approach, and it predicts less use of emotion-focused strategies, which influences the use of problem-focused strategies. The above variables have an effect on self-regulated learning. Specifically, the surface approach has a negative effect on self-regulated learning, and emotion-focused strategies also have a negative effect on this variable. This entire compendium of variables significantly affects performance and satisfaction with learning, the latter effect being more significant. Academic performance in turn affects satisfaction with learning, consistently with prior results presented above, since students with better grades may be more satisfied with their learning. The second model offers us a final, very important relationship, which we have defended throughout this paper. By this we refer to the effect of *regulatory teaching* on the relationships mentioned. We wish to stress its positive effect on satisfaction with learning, on goal setting and on regulatory teaching, and its negative effect on emotion-focused strategies (regulatory teaching predicts less use of emotion-focused strategies).

Limitations and prospects

This investigation has some limitations, which should be avoided in future studies. The first limitation is due to the lack of other research results of a comparable nature, referring to our core study variables: personal self-regulation, coping strategies and regulatory teaching. Especially in the case of personal self-regulation and of coping strategies, as we as have seen throughout this study, these variables have been studied mostly in clinical contexts. For this reason, the results obtained here are still tentative; the nascent treatise of this investigation leads us to be cautious in accepting conclusions with these variables. Another limitation has to do with *sample attrition* in some of the analyses, since not all the students completed all of the questionnaires and all the variables like sex, for this reason there was sample loss in some analyses. Future investigations should insist on the importance of completing this data point.

We must insist on the possible utility of the findings obtained in this research for educational practice, and stress certain general ideas that would serve for continuing this line of research. First, training self-regulation and coping behaviors can equip students with the needed skills that are common to both self-regulated learning and to self-regulating addictive behaviors, which affect not only the student's health but also his or her academic performance. Secondly, to promote and provide favorable conditions for quality teaching-learning environments that encourage deep learning. And finally, to equip teachers with the necessary skills for practicing regulatory teaching in university context.

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