**BABEŞ-BOLYAI UNIVERSITY OF CLUJ-NAPOCA**

**FACULTY OF PSYCHOLOGY AND EDUCATION SCIENCES**

**Department of Education Sciences**

***Doctoral school "Education-Reflection-Development"***

**Excerpt of the PhD Thesis**

# RATIONALITY AND CONTROL IN STUDENTS' SELF-REGULATED LEARNING

**-**

**Scientific supervisor,**

**Prof. Muşata BOCOŞ, PhD**

**PhD candidate,**

**Ionuţ-Dorin STANCIU**

Cluj-Napoca, 2012

**Content**

Keywords:

*Self-regulated learning strategies, academic control, biprocesual theory of control, irrationality of the system of beliefs, formative interventions, structural equation modeling*

*„Learning without thought is labor lost; thought without learning is perilous."*
— Confucius

# Chapter I. Theoretical framework and literary review

## I.1. Introduction

University graduates are confronted today with constantly increasing demands from the labor market. Moreover, the Romanian academic system must meet increasingly higher educational standards and the Romanian universities must implement international standards of education excellency. This competitiveness aspect in tertiary education is related both to the amount of knowledge and domain-specific competencies and to the students' personal attitude towards academic performance and towards their newly gained status as professionals in their chosen areas of specialization.

For this level of instruction, specific to the graduate education, the existing research showed positive correlations between the degree of knowledge self-monitoring and the grades acquired (Tobias & Everson, 2009). Unfortunately, however, the biological maturity doesn't exclude the possibility of flaws in learning strategies and, regardless of their age, from children to graduate students, people present failures in metacognition and false beliefs about possessing knowledge which, in reality, they do not have (Pashler et al., 2007). Moreover, teaching a strategy doesn't guarantee that the students will continue to use it, especially if they believe that that strategy is not important enough or as important as other factors for attaining success (D. H. Schunk & Ertmer, 2000). Despite the above mentioned risks, the learning strategies can be successfully taught explicitly from primary to tertiary education if they are integrated into a wider, more comprehensive self-regulatory training framework (Pressley & Woloshyn, 1995; Zimmerman, 1989).

Accomplishing self-regulated learning requires both will and skill (Blumenfeld & Marx, 1997; McCombs & Marzano, 1990). In this respect, the schooling must help the student become aware of his or her own cognition, have a strategic approach, and direct his or her motivation towards meaningful goals. The main objective is that the student become his or her own teacher; and this is how the transfer from teaching to self-reflective practice is accomplished (Dale H. Schunk & Zimmerman, 1998). More so, the educational goals regarding the learning skills and strategies intertwine more effectively with the more general educational formative objective of the students' optimal development during their educational curriculum (Duckworth, 2009).

## I.2. Literary review

### I.2.1. Self-regulation. Definitions and theoretical approaches to self-regulation

Self-regulation represent those natural, often automatic, responses of an individual which aim to reduce the disparities between the individual's expectancies and the perceived reality. Self-regulation implies cognitive and/or behavioral processes and is almost always accompanied by emotional control. An efficient self-regulation which accomplishes the control of reasoning, emotions and behavior constitutes the foundation for a healthy psychological functioning. As Zimmerman (2000) synthetically stated, self-regulation refers to thoughts, feelings and actions which are planned and adapted with a view to achieve personal goals (Zimmerman, 2000).

The analysis of the self-regulated personality implies explaining the manner in which self-regulation is related to the personality traits, including temperamental, and in the inter-individual differences (Hoyle, 2010). However, self-regulation is a dynamic concept, which suggests that there activities and processes which the student can initiate and which are modifiable, and not necessarily implacable personality traits, which an individual either has or doesn't have. For instance, self-regulation has to do with the way in which the students manage their own emotions and motivation to learn. Moreover, the self-regulation can be enhanced in practice, by accomplishing a set of beliefs and strategies based on previous experiences (Duckworth, 2009).

In our research approach is important to note that self-regulation can be viewed both as a characteristic of the human behavior and as a capacity of the individual. The individual is able to self-regulation adaptively, which characterizes the human behavior in all areas of the psychosocial functioning—an approach which considers the self-regulation as being characteristic to human beings. On the other hand, the individual has an ability to self-regulate which can be measured and whose measures differ from one person to another. However, the most important that pertains to self-regulation is, in our opinion, what Duckworth (2009) identifies as self-regulation modifiability. In addition, due to its pervasiveness in the individual's life, the self-regulation is relevant for the learning process, also.

### I.2.2. Self-regulation in learning. Definitions and theoretical approaches

The self-regulation of learning, or academic self-regulation, refers to those thoughts, emotions and self-generated actions intended to achieve specific educational

goals, such as the analysis of a written material during a reading task, the preparation for an exam or a test, or the writing of a paper (Zimmerman, Bonner, & Kovach, 1996).

Another, more comprehensive definition of self-regulated learning, endorsed by many authors, is that of learning guided by metacognition, of strategic action (planning, monitoring, and self-assessment of personal processes, in relation with a certain standard), and that of motivation for learning (Boekaerts & Corno, 2005; Butler & Winne, 1995; Winne & Perry, 2000; Zimmerman, 1990). Although it is comprehensive, it is exactly the incorporation of so many constructs that makes this definition somewhat cumbersome and difficult to operate. In addition, self-regulated learning can be view both as an individual process and as a social process, which brings into focus which are the individual and sociocultural factors that influence the development of self-regulated learning (Butler, 2002). Recent analysis concerning the significance of these concepts in the fundamental research showed a tendency towards their combined use and their intertwined utilization, but also major differences stemming from the different approaches to their measurement (Dinsmore, Alexander, & Loughlin, 2008).

The research regarding self-regulated learning reveal two main approaches. On the one hand, the self-regulation of learning can be views as a process which takes place in steps or stages (Butler & Winne, 1995; Carver & Scheier, 1990; Pintrich, 2000; Zimmerman & Schunk, 1989). On the other hand, it can be viewed as a series of individual attributes, which include knowledge and metacognitive strategies, affective structures, and intentional or volitional factors (Boekaerts & Corno, 2005).

### I.2.3. Two models with explicative relevance for the self-regulation of learning

*A. The biprocesual perspective of perceived academic control*

The biprocesual theory of control (Rothbaum, Weisz, & Snyder, 1982) distinguishes between the convictions or beliefs of a person regarding his or her own ability or capacity to effectively change the external circumstances (via mechanisms of primary control) and the ability to change one-self's process and internal states (via mechanisms of secondary control). Perry et al. (1998; 2001) placed these primary and secondary control mechanisms in academic contexts, differentiating between *primary academic control* (PAC) and *secondary academic control* (SAC), whereas Hall (2006), in his research regarding the optimization of control, identifies a third variable related to the perceived academic control, that is *the reported congruence ability* (RCA), which represents the ability of a person to shift willingly between primary and secondary control mechanisms, as the objective circumstance requires it.

According to the biprocesual theory of academic control, when the student is confronted with a specific academic task or is immersed in a specific academic context, he or she perceives in a person-specific manner the activation of primary or secondary control mechanisms in order to achieve his or her objectives. In turn, RCA can be regarded as a measure of the coping that the student employs in order to increase the efficiency of his or her academic control. Since the tendency towards changing external circumstance or, alternatively, towards the attitudinal cognitive and behavioral readjustment—or, in other words, the predominance of use of either primary academic control mechanisms or secondary control mechanisms—as well as the reported congruence ability lead to the selection of different goals and subsequent actions, we considered feasible that the type and specific manner of academic control result in the selection of different self-regulated learning strategies, as well as different levels of activation of the self-regulated learning strategies. Moreover, both the engagement and the disengagement in strives towards exercising primary control may result, according to the *motivational development theory*, to increase frustration and lack of alternative behaviors (Heckhausen & Wrosch, 2010).

*B. The rational emotive behavioral therapy and education theory perspectives on the irrationality of the system of beliefs*

The individual is not merely a cognitive processing unit of the internal or external reality, but also an active evaluator of it. The evaluating aspect of the individual's system of beliefs is best explained by Albert Ellis's (Ellis, 1955 apud. Weinrach, 1996) Rational Emotive Behavioral Therapy Theory, which identifies four main factors or dimensions which can bias the cognitive system, and lead to undesirable consequences for the individual's psychological and emotional wellbeing, as well as for his or her efficient social and professional functioning. The rational emotive education interventions were employed successfully for the prevention and correction of irrational beliefs. These type of interventions aim at identifying and disputing irrational beliefs with a view to ensure a stable and consistent state of emotional and psychological wellbeing of the student during his or her development. Specifically, outside the therapeutic framework, the theory and practice of rational emotive behavioral therapy (REBT) was also successfully employed in schools, in the form of rational emotive education (DiGiuseppe & Bernard, 1990, in David, Lynn, & Ellis, 2010, p. 174). The research regarding the individual's system of beliefs, in general, and those regarding the rational emotive education interventions, in particular, often report that changes in the irrational beliefs are accompanied by changes in self-

constructs, such as perceived self-efficacy, unconditional acceptance, self-esteem, locus of control, etc.

### I.3. Framing the research

The main objective of the doctoral research was to determine the existence and the nature (simple covariance, causal influence, etc.) of the relations between the three main constructs: *self-regulation of learning*, *perceived academic control* and *irrationality*. The learning process implies a certain degree of self-determination and self-regulation, and, consequently, the activation of certain self-regulatory strategies involved in learning. Implementing these strategies requires that the individual exercises a certain degree and type of academic control which is person-specific. In turn, the academic control is specifically adapted to the objective conditions of the learning environment and is more or less rational or critical.

# Chapter II. The original research

## II.1. Introduction

The literary review showed that it is feasible to conceive as main hypothesis that the self-regulation of learning is influenced by the way and manner in which the individual exercises his or her mechanisms of academic control (primary, secondary, and the congruence ability), which in turn is influenced by the rationality of the individual's system of beliefs.

Due to the innovative and original nature of the research topic, a three-tier research architecture was designed, in order to cover all possible grounds in assessing the validity of the main hypothesis. As such, a first stage of the research was design in order to identify and explore the existence and nature of the relations between the three main constructs: self-regulation of learning, academic control, and irrationality. A second stage of research, build on the results of the first stage, and modeled a triadic relation between the three main constructs. Finally, in the third stage, a validation research was conducted, employing two formative interventions, which provided experimental validation of the structural equations models developed in the second stage.

## II.2. Common methodological aspects

### II.2.1. Measurements

Several methodological aspects were common between the three stages of research, including the use of self-reported questionnaires as instrument of collecting data concerning the participants' levels of irrationality, academic control, and, respectively, self-regulated learning strategies. The Motivated Strategies for Learning Questionnaire, developed by Pintrich et al. (1991), was used to measure the self-regulated learning strategies. The Primary Academic Control Scale developed by Perry et al. (2001), The Secondary Academic Control Scale also developed by Perry et al. (1998), as well as Hall's (2006) Reported Congruence Ability Scale were used to measure the dimensions of perceived academic control. DiGiuseppe et al.'s (2007) ABS2 instrument for measuring irrationality was employed to assess the participants' system of beliefs level of rationality.

### II.2.2. Participants

A number of 220 undergraduate students enrolled at Babes-Bolyai University of Cluj-Napoca took part in the exploratory phase of the research. They were complemented by 158 high school students for the between-groups age-variation analysis stage of the exploratory research. The original 220 undergraduate students were completed up to 252 participants which took part in the structural equation modeling research. A selection of 65 students, allocated into 2 groups of 32 and, respectively, 33 students each, constituted the basis for the experimental research and formative interventions.

## II.3. Exploratory research

### II.3.1. Design

A correlational design was employed to gather data regarding the three main constructs from a sample of 220 undergraduate students. Data was subjected to product moment correlation calculus in order to identity bivariate correlation for each factor of each of the three main constructs, paired against factors of the other constructs.

### II.3.2. Results

Significant results—at $p$ (bidirectional) < .05, were identified between a series of factors of the three main constructs, as show in Figures 1, 2 and 3, bellow:

| | iraţionalitate (scor global) | |
|---|---|---|
| anxietatea de examinare | 0.261 | ** |
| autoreglare metacognitivă | -.250 | ** |
| orientare spre scopuri extrinseci | 0.204 | ** |
| reglarea efortului | -.202 | ** |
| credinţele privind autoeficacitatea învăţării | -0.188 | ** |
| orientarea spre scopuri intrinseci | -0.184 | ** |
| valorizarea sarcinii | -0.159 | * |
| elaborare | -0.135 | * |
| gândire critică | -.113 | n.s. |
| managementul timpului şi al mediului de studiu | -.103 | n.s. |
| învăţare colaborativă | .085 | n.s. |
| căutare de ajutor | -.072 | n.s. |
| credinţele privind controlul învăţării | -.044 | n.s. |
| organizare | .032 | n.s. |
| repetare | .012 | n.s. |
| * corelaţie semnificativă la nivelul $p < .05$ (bidirecţional) | | |
| ** corelaţie semnificativă la nivelul p < .01 (bidirecţional) | | |
| n.s. corelaţie nesemnificativă statistic | | |

*Figure 1:* Self-regulation of learning vs. irrationality dimensions bivariate correlations

| | control academic primar | | control academic secundar | | abilitatea raportată a congruenţei | |
|---|---|---|---|---|---|---|
| orientare spre scopuri intrinseci | 0.289 | ** | 0.463 | ** | 0.426 | ** |
| credinţe privind autoeficacitatea învăţării | 0.443 | ** | 0.325 | ** | 0.424 | ** |
| autoreglare metacognitivă | 0.398 | ** | 0.486 | ** | 0.414 | ** |
| valorizarea sarcinii | 0.428 | ** | 0.463 | ** | 0.39 | ** |
| repetare | 0.339 | ** | 0.388 | ** | 0.337 | ** |
| gândire critică | 0.241 | ** | 0.425 | ** | 0.324 | ** |
| credinţe privind controlul învăţării | 0.265 | ** | 0.256 | ** | 0.3 | ** |
| elaborare | 0.326 | ** | 0.477 | ** | 0.268 | ** |
| managementul timpului şi al mediului de studiu | 0.379 | ** | 0.314 | ** | 0.253 | ** |
| organizare | 0.166 | * | 0.287 | ** | 0.19 | ** |
| reglarea efortului | 0.414 | * | 0.21 | ** | 0.14 | ** |
| căutare de ajutor | 0.227 | ** | 0.235 | ** | 0.1 | n.s. |
| orientare spre scopuri extrinseci | 0.154 | * | -0.013 | n.s. | 0.086 | n.s. |
| învăţare colaborativă | 0.079 | n.s. | 0.198 | ** | 0.08 | n.s. |
| anxietate de examinare | -0.226 | ** | -0.017 | n.s. | 0.008 | n.s. |
| * corelaţie semnificativă la nivelul $p < .05$ (bidirecţional) | | | | | | |
| ** corelaţie semnificativă la nivelul $p < .01$ (bidirecţional) | | | | | | |
| n.s. corelaţie nesemnificativă statistic | | | | | | |

*Figure 2:*Self-regulation of learning vs. academic control dimensions bivariate correlations

| | control academic primar | | control academic secundar | | abilitatea raportată a congruenţei | |
|---|---|---|---|---|---|---|
| toleranţă scăzută la frustrare | -0.107 | n.s. | -0.136 | * | -0.243 | ** |
| autodepreciere/evaluare globală | -0.12 | n.s. | -0.128 | n.s. | -0.224 | ** |
| catastrofizare | -0.097 | n.s. | -0.172 | * | -0.201 | ** |
| gândire absolutistă | 0.006 | n.s. | -0.157 | * | -0.118 | n.s. |
| iraţionalitate (scoruri globale) | -0.091 | n.s. | -0.17 | * | -0.228 | ** |
| * corelaţie semnificativă la nivelul $p < .05$ (bidirecţional) | | | | | | |
| ** corelaţie semnificativă la nivelul $p < .01$ (bidirecţional) | | | | | | |
| n.s. corelaţie nesemnificativă statistic | | | | | | |

*Figure 3:* Academic control vs. irrationality dimensions bivariate correlations

The existence of a large number of bivariate correlations between the factors or the dimensions of the three main constructs supports the hypothesis of a triadic relation between these constructs.

### II.4. Structural equation modeling

#### II.4.1. Design

A causal influence pathway analysis was developed in order to investigate the statistical probability that the observation (empirical) data support a triadic relation

between the self-regulation of learning, academic control, and irrationality, with academic control dimensions mediating between self-regulation of learning and the irrationality of the individuals' system of beliefs.

### II.4.2. Results

Data from a sample of 252 participants was used with sufficient metodological rigor in order to construct three fitted structural equation models, one for each of the three sets or classes of self-regulated strategies, as shown in Figures 4, 5, and 6.

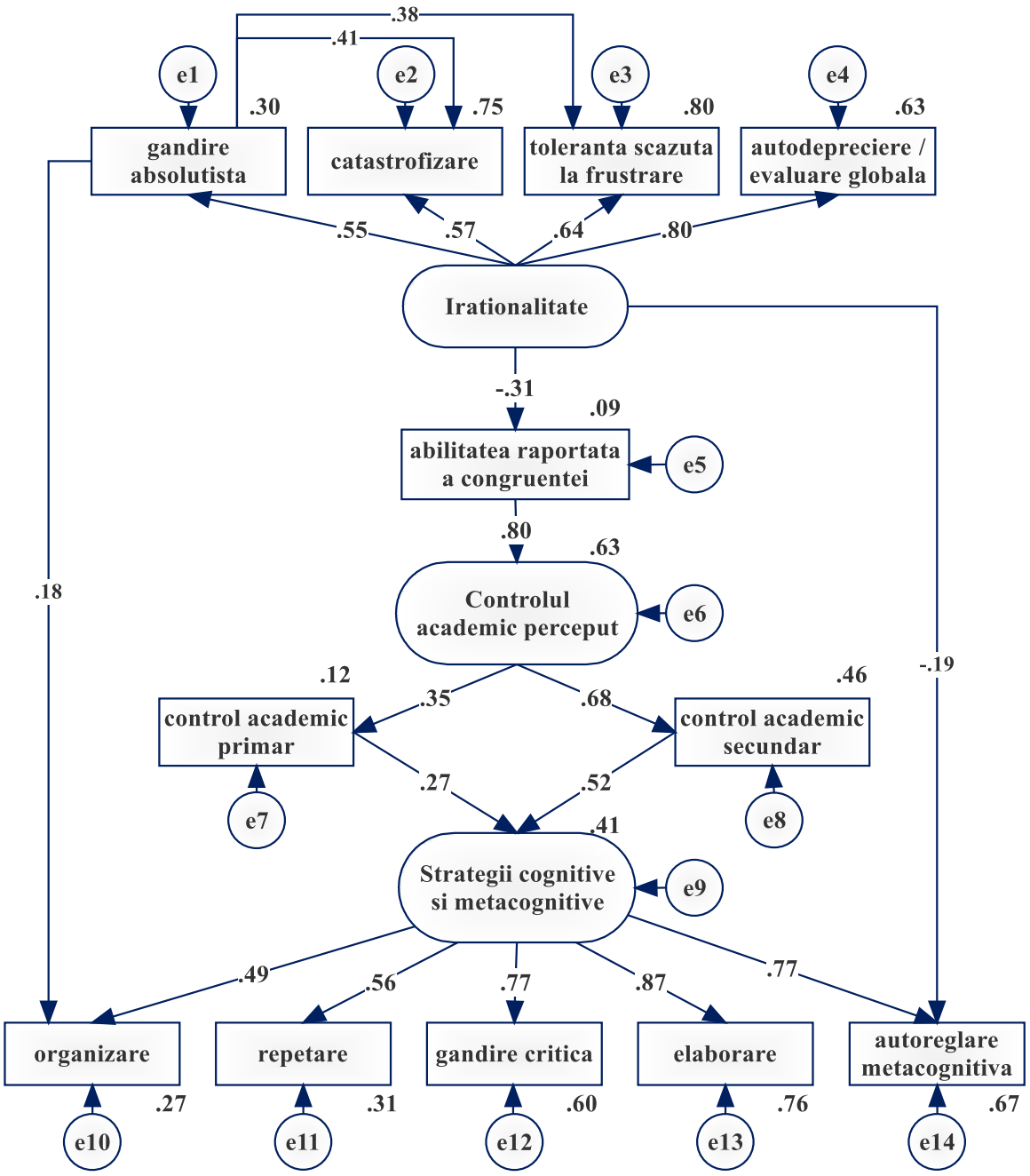


*Figure 4:* Structural equations model for the cognitive and metacognitive strategies

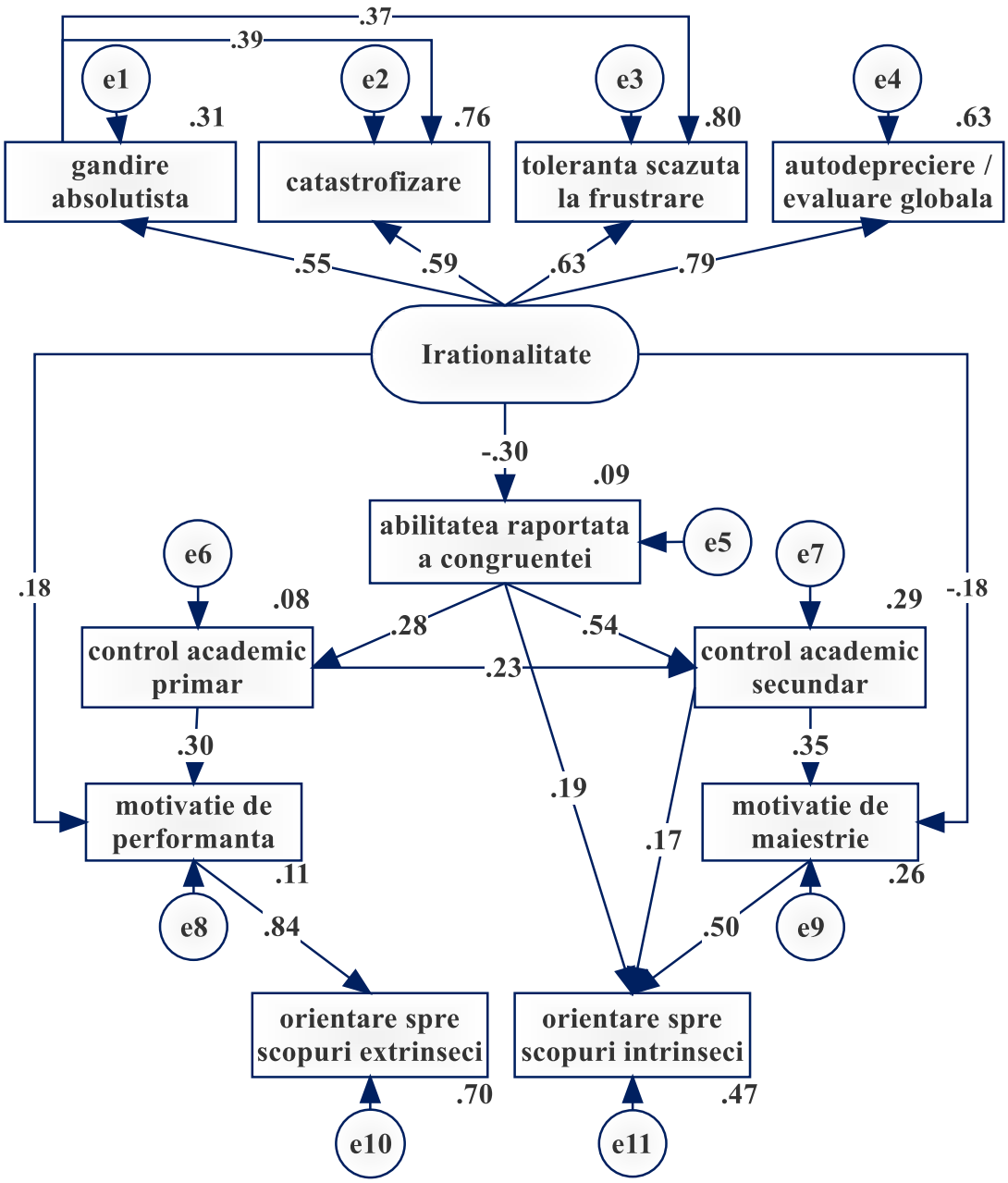


*Figure 5:* Structural equation model for the goal orientation strategies

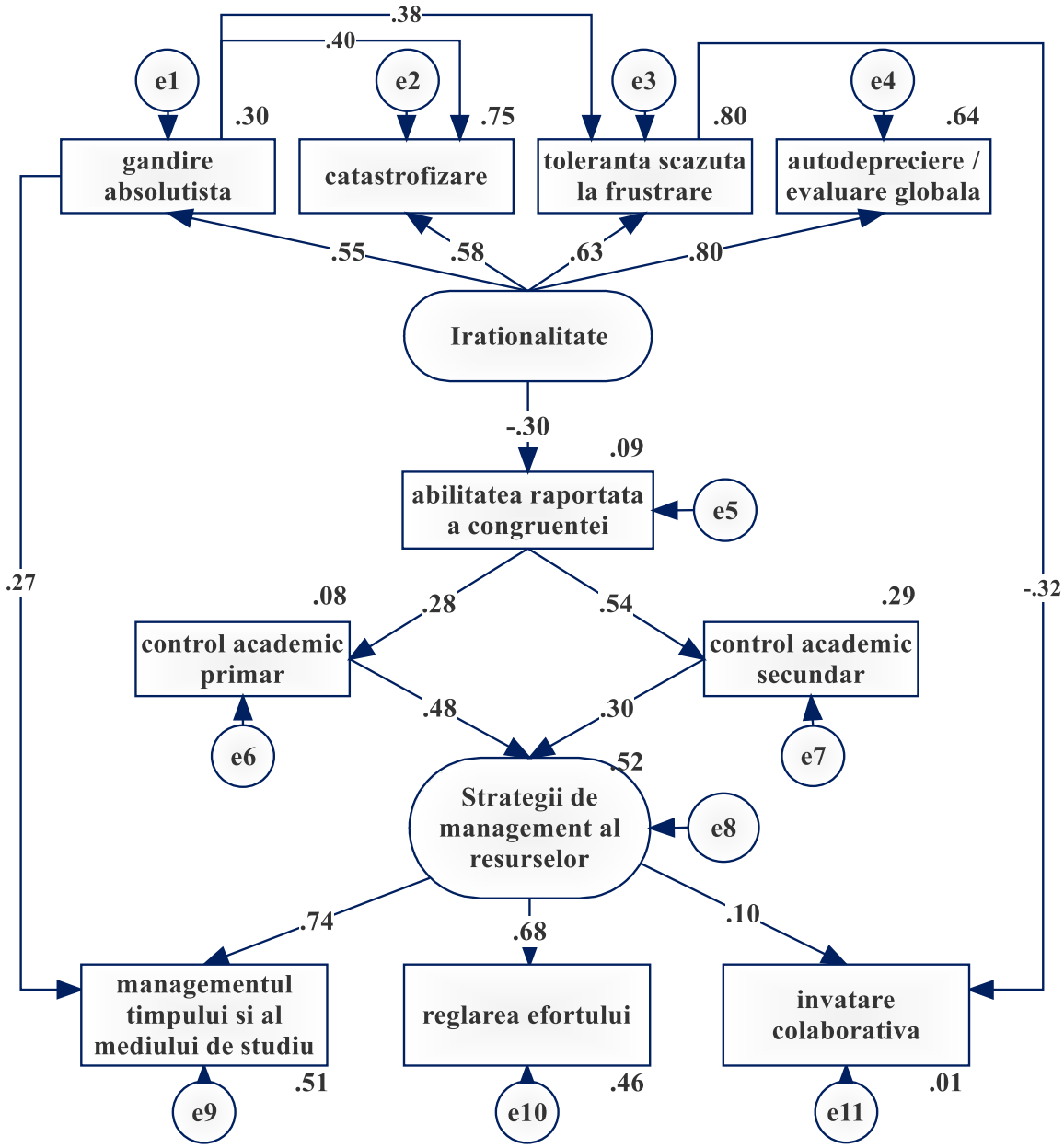


*Figure 6:* Structural equations model for the resources management strategies

The fit indices of the three models showed that a large percent of the variability recorded in self-regulated learning strategies could be explained by the causal influences from the individual's system of beliefs, mediated by his or her beliefs regarding the academic control.

## II.5. Experimental research

### II.5.1. Design

In order to gain experimental validation for the hypothesized, and consequently, modeled influence pathways, two experimental formative interventions were designed. One of these interventions acted at the level of self-regulated learning strategies, ignoring the academic control and the individual's irrationality, whereas the other ignored the self-regulated learning strategies and the academic control abilities and influenced the irrationality of the individual's system of beliefs. 32 participants finalized their participation in the intervention aimed at identifying and disputing the irrational beliefs whereas 35 participants successfully completed their participation in the self-regulation of learning enhancement program.

### II.5.2. Results

A series of statistically significant differences (at $p$ (bidirectional) < .05) were observed, after a t-tests series of analysis, between the pre-test (ante-intervention) and post-test (post-intervention) levels of self-regulated learning strategies, as well as between the effects of the two interventions.

The results validate the main hypotheses of irrationality and academic control as determinants of self-regulated learning strategies, and of the secondary hypothesis, regarding the academic control mediating between irrationality and self-regulation of learning. Thus, the structural equation models were, at least partly, confirmed, as well as the broader working hypothesis concerning the modifiability of the self-regulation of learning in collegiate students.

Figure 7 presents synthetically and comparatively the results regarding the magnitude of the mean differences and the effect sizes between the pre-test and post-test measurements for both interventions, as well as between the post-test between the two interventions.

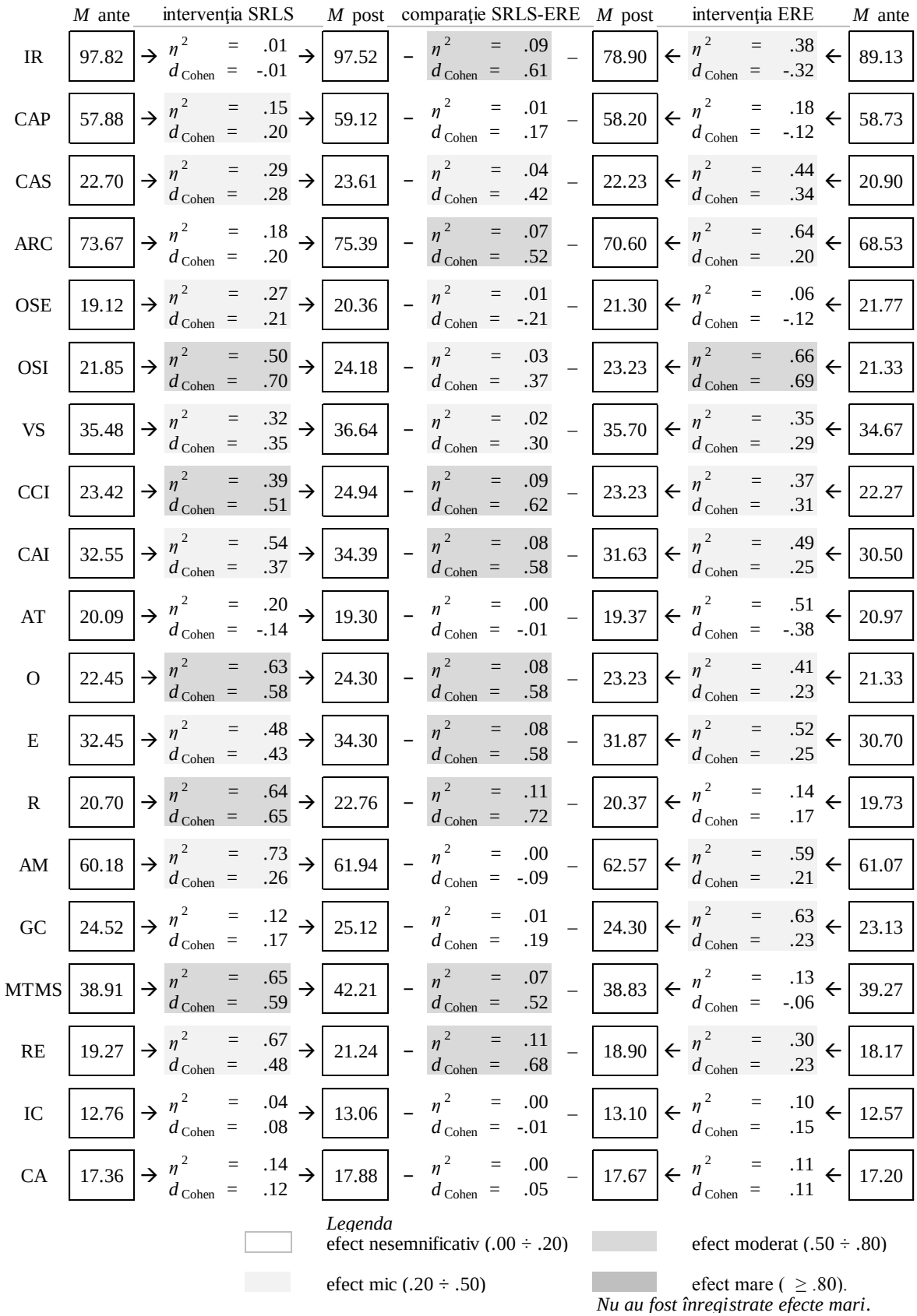


*Figure 7:* Synthetic comparison between pre-test and post-test levels of self-regulated learning strategies after each intervention and between the post-test levels of self-regulated strategies.

# Chapter III. Conclusions and discussions

The main working hypothesis employed during the research was that the learning process implies a certain level of self-determination and self-regulation, which in turn is influenced by the perceived academic control and the irrationality level of the individual's system of beliefs. For each stage of the research, a series of more specific hypotheses were formulated. Null hypotheses were constructed in order to negate the existence of statistically significant bivariate relations between the factors or dimensions of the three main constructs. Implicitly, the null hypotheses for the structural equation models stated that it would not be possible to construct models with acceptable fit indices, in order to model the triadic relation of self-regulation of learning-irrationality-academic control, with academic control mediating between the other two constructs. Finally, with respect to the experimental formative interventions, the null hypotheses negate, on the one hand, the effect of an intervention concerning the irrationality on the self-regulation of learning strategies, and, on the other hand, the effects of an directly targeted self-regulated learning strategies augmentation intervention. The magnitude and direction of the interventions' effects also provided data as to the validity of the hypothesized influence pathways. All relevant null hypotheses were rejected at the *p* (bidirectional) level of statistical significance of .05, and some of them observed much lower statistical significance levels.

The value of the research is not confined at providing empirical, experimental data for the research hypotheses. It brings together three main theories from across from various fields of research—educational and school psychology, as well as clinical, health and developmental psychology. It also provides a solid foundation for interpreting and explaining scientifically the variations in self-regulation of learning, both between individuals and between age groups (high school vs. collegiate student). The interventions designed in order to influence two main constructs used in the research (self-regulated learning strategies and irrationality) can be optimized and developed further into powerful tools with a variety of beneficial effects on the individuals emotional, intellectual, cognitive and metacognitive, as well as behavioral efficiency and wellbeing, in academic contexts, and outside it.

# Bibliography


Blumenfeld, P.C., & Marx, R.W. (1997). Motivation and cognition. In H. J. Walberg & G. D. Haertel (Eds.), *Psychology and educational practice* (pp. 79-106). Berkley, CA: McCutchan.

Boekaerts, Monique, & Corno, Lyn. (2005). Self-regulation in the classroom: A perspective on assessment and iIntervention. *Applied Psychology: An International Review, 54*(2), 199-231. doi: 10.1111/j.1464-0597.2005.00205.x

Butler, Deborah L. (2002). Qualitative approaches to investigating self-regulated learning: Contributions and challenges. *Educational Psychologist, 37*(1), 59-63. doi: 10.1207/00461520252828564

Butler, Deborah L., & Winne, P.H. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research, 65*, 245-328.

Carver, C. S., & Scheier, M. F. (1990). Principles of self-regulation: Action and emotion. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 3-52). New York: The Guilford Press.

David, Daniel, Lynn, Steven J., & Ellis, Albert. (2010). *Rational and irrational beliefs: Research, theory, and clinical practice*. New York: Oxford University Press.

DiGiuseppe, Raymond, Leaf, R., Exner, T. , & Robin, M. (2007). The Absolute Beliefs Scale (B. Macavei, Trans.). In D. David (Ed.), *Clinical assessment system*. Cluj-Napoca: RTS.

Dinsmore, Daniel, Alexander, Patricia, & Loughlin, Sandra. (2008). Focusing the conceptual lens on metacognition, self-regulation, and self-regulated learning. *Educational Psychology Review, 20*(4), 391-409. doi: 10.1007/s10648-008-9083-6

Duckworth, Kathryn (Ed.). (2009). *Self-regulated learning: A literature review*. London: Centre for Research on the Wider Benefits of Learning, Institute of Education.

Hall, Nathan C. (2006). *Optimizing primary and secondary control in achievement settings: An examination of Rothbaum et al.'s (1982) congruence hypothesis.* (Ph.D. NR12262), University of Manitoba (Canada), Canada.

Heckhausen, Jutta, & Wrosch, C. (2010). A motivational theory of life-span development. *Psychological Review*. doi: 10.1037/a0017668

Hladkyj, S., Pelletier, S. T., Drewniak, E. P., & Perry, R. P. (1998, 1998). *Evidence for the role of secondary control in students' adaptation to college*, San Diego, CA.

Hoyle, Rick H. (2010). *Handbook of personality and self-regulation*. Chichester, U.K.; Malden, MA: Wiley-Blackwell.

McCombs, B.J., & Marzano, Robert J. (1990). Putting the self in self-regulated learning: The self as agent in integrating will and skill. *Educational Psychologist, 25*, 51-69.

Pashler, Harold, Bain, Patrice M., Bottge, Brian A., Graesser, Arthur, Koedinger, Kenneth, McDaniel, Mark, & Metcalfe, Janet. (2007). Organizing instruction and study to improve student learning. IES practice guide. NCER 2007-2004. Washington D. C.: Institute of Education Sciences, National Center for Education Research.

Perry, Raymond P., Hladkyj, Steven, Pekrun, Reinhard H., & Pelletier, Sarah T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *Journal of Educational Psychology, 93*(4), 776-789. doi: 10.1037/0022-0663.93.4.776

Pintrich, Paul R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451-502). San Diego: Academic Press.

Pintrich, Paul R., Smith, David, Garcia, Teresa, & McKeachie, Wilbert J. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor: University of Michigan, School of Education.

Pressley, Michael, & Woloshyn, Vera. (1995). *Cognitive strategy instruction that really improves children's academic performance*. Cambridge, Mass.: Brookline Books.

Rothbaum, Fred, Weisz, John R., & Snyder, Samuel S. (1982). Changing the world and changing the self. *Journal of Personality and Social Psychology, 42*, 5-37. doi: 10.1037//0022-3514.42.1.5

Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of Self-Regulation*. Burlington, MA: Elsevier Academic Press.

Schunk, Dale H., & Zimmerman, Barry J. (1998). *Self-regulated learning: From teaching to self-reflexive practice*. New York: Guilford.

Tobias, Sigmund, & Everson, Howart T. (2009). The importance of knowing what you know. A knowledge monitoring framework for studying metacognition in education *Handbook of metacognition in education* (pp. 462). New York: Routledge.

Weinrach, Stephen G. (1996). Nine experts describe the essence of rational-emotive therapy while standing on one foot. *Journal of Counseling & Development, 74*(4), 326.

Winne, P.H., & Perry, N.E. (2000). Measuring self-regulated learning. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 531-566). San Diego, CA: Academic Press.

Zimmerman, Barry J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329-339. doi: citeulike-article-id:1465571

Zimmerman, Barry J. (1990). Self-regulated learning and academic achievement: An overview. *Educational Psychologist, 25*(1), 3-17.

Zimmerman, Barry J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 451-502). San Diego, CA: Academic Press.

Zimmerman, Barry J., Bonner, Sebastian, & Kovach, Robert. (1996). *Developing self-regulated learners : Beyond achievement to self-efficacy*. Washington, DC: American Psychological Association.

Zimmerman, Barry J., & Schunk, Dale H. (1989). *Self-regulated learning and academic achievement: Theory, research, and practice.* New York: Springer-Verlag.