

APPLICATION OF THE CAED AUTONOMY SCALE TO ASSESS THE IMPACT OF FINANCIAL EDUCATION

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1. Introduction

The aim of this article is to present the attitude scale developed by CAEd/UFJF to function as an impact assessment instrument for the Financial Education Course, which is being implemented on an experimental basis in some public high schools in various parts of Brazil⁴.

Our premise for constructing this scale is that the course aims to modify the students' attitudes; that is, to improve their subjective relationship with the world of finances, allowing them to incorporate and/or strengthen ethical values and orientations that will influence their everyday financial experience. In that sense, after studying the strategic document that is the theoretical and conceptual basis of the course's proposal, the pedagogical project that establishes its objectives, principles and pedagogical guidelines and of the teaching material created for that activity, it was concluded that the course aims at having an impact mainly on three types of capacities, which are:

- *Capacity to choose responsibly.* In carrying out any kind of financial operation, such as buying, investing or borrowing, the student should be capable of taking into consideration criteria such as the company's profile, price competition/comparison, risks, rights and obligations involved. For that to happen, the student needs to develop a certain

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⁴ The financial education pilot course was implemented in Brazil between August and December 2010, at public high schools from the states of São Paulo, Rio de Janeiro, Minas Gerais, Ceará, Tocantins and Distrito Federal.

attitude to make financial decisions, one that involves a critical review of the different aspects of any financial operation.

- *Capacity to plan.* For long term financial decision making and planning, the student should be able to design plans that are compatible with a viable budget based on a specific amount of time. This implies that the student has the attitudinal predisposition to act based on a cost-benefit relationship, which in turn implies a predisposition to prudence, discipline and the creativity to imagine attainable horizons.

- *Capacity to act to improve one's reality.* At the end of the course, it is expected that the student be able to use financial tools not only to conceive of long term financial projects, but to execute them, which implies the developing of attitudes such as the so-called "self-efficient" optimism, which links confidence and perseverance.

In order to be measured, these three types of capacities needed to be reduced and synthesized in attitudinal dimensions. Here, the notion of autonomy became recognized as central to thinking about the teaching and learning processes of the target audience of the FE Course; that is, young people enrolled in public high schools. The concept of autonomy would allow for the articulation of the major aspects related to the attitudinal disposition that the course wants to promote among the students, since the target audience would be going through the transition into adulthood (the majority of them are between 14 to 17 years old), a process that is marked by a growing emotional autonomy in the face of family and other adults in their midst.

2. Defining the concept of autonomy

In specialized literature, autonomy has been studied, primarily, in the area of psychometrics. Here, autonomy is understood as a multidimensional concept that can have different scopes, such as independence, confidence (in oneself, others and the environment), self-efficient optimism, self-control, among others. In the words of Reichert e Wagner (2007) “autonomous is the individual with initiative, who can identify his desires, knows how to put them into practice and takes responsibility for his actions.” According to them, “autonomous is the individual that recognizes his potentialities and his weaknesses. He is able to show his emotions, because he is sure of his attitudes, is confident in himself and in others, succeeding in proving himself without devaluing or diminishing himself; he has confidence in himself, and in his environment” (p.414).

Berndt (1976) presents two studies about the adolescent conformity to parents and peers. The first study was done with children and young people from 9 to 18 years old. They responded to 30 hypothetical situations in which peers urged them to take action, with 10 situations for each type of behavior: antisocial, neutral or prosocial.

The antisocial situations included cheating, stealing, trespassing and property destruction. The neutral ones involved sports, hobbies, entertainment, places to eat. The prosocial situations were comprised of activities such as charity, helping other children and teaching the youngest ones. The results show a peak in peer conformity in the middle years of adolescence. This trend appears in all three forms of behavior.

The second study investigated the changes in development regarding the conformity to parents and peers. The age group was the same as in the first study. The questionnaire had the same structure as the one before, but this time it included hypothetical situations for actions suggested by the parents. The results indicate that conformity to parents tends to decrease with age. The conformity to peers regarding antisocial behavior increases between 9 and 14 years of age, then it decreases.

Laurence Steinberg and Susan Silverberg (1986) conducted a study of 865

adolescents between the ages of 10 and 16. The questionnaire contemplated three aspects of autonomy: emotional autonomy in relationships with parents, resistance to peer pressure and the subjective sense of self-reliance.

The authors present a series of definitions of autonomy found in specialized literature. According to them, “the length and diversity of the operationalizations (**definitions of autonomy**) suggest that autonomy is probably more appropriately conceptualized as a chapter heading, under which a variety of putatively related phenomena might be grouped, rather than as a unidimensional aspect of adolescent psychological development.” Still according to them, the psychoanalytic view is that at least in the beginning of adolescence, autonomy in relationships with parents and autonomy in relationships with peers is negatively related. The authors defend that the first stage of adolescence is a period of transformations that greatly influence the development of autonomy.

Noom, Dekovic and Meeus’ (2001) analysis of the existing literature on autonomy resulted in an “integrative model” in which the common features found were reunited in three different dimensions, which are:

Attitudinal autonomy – achieved when able to set goals, it can be summarized as the ability to “think before acting”, it relates to notions such as knowledge, consciousness and responsibility.

Emotional autonomy – relates to the perception of emotional independence in the face of parents, relatives and peer groups. The authors define as emotional “the feeling of confidence in one’s own choice”.

Functional autonomy – a regulatory dimension referring to the different approaches taken to achieve a goal. The authors affirm that “this ability incorporates regulatory processes such as the perception of competence and the perception of control.” The perception of competence refers to “the availability of different strategies to achieve a goal.” And the perception of control refers to “the ability to choose a specific strategy, which is effective enough to succeed.” In addition, the functional autonomy dimension also includes the perception of responsibility, “an important aspect that can function as an

incentive for adolescent behavior” (p. 581). According to the authors, “functional autonomy is achieved when adolescents are able to develop their way in how to reach their goals.” And also, “the process of taking over activities.” (p. 593)

After defining these three dimensions of autonomy, Noom, Dekovic and Meeus (2001) tested empirically the plausibility of the model; that is, the validity of conceptualizing autonomy from the synthesis of these three dimensions. For that, three constructs were chosen to determine the existing convergence or divergence between the dimensions: perception of institutional goals (strategy), locus of control (responsibility for the outcome of one’s own behavior), and coping (personal style to deal with everyday problems). The authors weigh these constructs against variables such as age and gender.

It is important to consider the warning given by Reichert and Wagner (2007) about this synthetic perspective, that “you cannot understand and explain the development of autonomy without considering the environment in which this process happens.” To the authors of the “systemic ecological theory”, understanding the youth’s autonomy achievement presupposes that his environment is taken into consideration, which, in the case of Brazil, “has revealed itself as violent, competitive and offering little protection.” In that sense, in order to contemplate autonomy it is crucial to consider family configurations, including parent-child relationship patterns, as well as the environmental context of the student.

From that, it is possible to define a concept of autonomy that articulates a subjective dimension, related to personality traits, in a sociological dimension, with respect to the institutional and social environment to which the participants belong.

3. The CAEd autonomy scale applied to the subject of finances

Following the guidelines presented in specialized literature, and more closely the indications of Noom, Dekovic and Meeus (2001), CAEd/UFJF constructed an autonomy scale for the subject of finances. For that, three dimensions were addressed:

Reflexive Autonomy – refers to the capacity of the individual to choose his goals, based on the knowledge he has of the situation, and the capacity to take responsibility for the consequences of his actions. This dimension of autonomy can be described as the inclination to “think before acting”, considering the reasons and the conditions available, pondering the consequences, processing information.

This dimension was originally organized on a scale containing 15 items, divided in three subitems. The first subitem relates to reflexivity itself, the second is about confidence in the institutional environment, and the third, is the capacity to plan for the future.

Emotional Autonomy or autonomy in the face of others – refers to the individual’s ability to make his own choices independently of parents’, relatives’ and peers’ preferences. It is associated with the perception of emotional independence, translated by the feeling of confidence in one’s own choices.

On this scale, the basic assumptions are confidence and independence in the face of parents and peers. The Financial Education Course aims to empower its students in financial matters, endowing them with the capacity to discuss the subject, establishing both a dialogue with and a critical distance from family and peers, as well as in relation to the influence of publicity.

This dimension was also organized on a scale of 15 items, subdivided into three. Beyond family and peers, who are usually the major influences on the values and attitudes of young people, a set of sentences referring to publicity was also included, since it plays an important role in promoting trends and behavioral patterns.

Functional Autonomy – refers to the individual’s ability to associate freedom of choice in terms of goals and his capacity to achieve them. Therefore, the capacity to recognize attainable goals and the mastering of the necessary procedures to attain them is a dimension of autonomy. In the first case, there exists the capacity to recognize the available strategies for reaching a goal. In the second one, the capacity to choose a path and control one’s actions is based on the objectives one wishes to achieve.

The functional autonomy scale aims to measure the predisposition of individuals to face challenges and/or to adapt to new and unexpected circumstances. The Financial Education Course intends to enhance these traits by teaching the student to search for information and look for alternatives in financial matters, as well as by strengthening his ability to adapt his personal desires to socially imposed needs. In that sense, the main aim of this scale is to measure if the course managed to increase the student’s capacity for self-control; that is, adjusting desires and needs, as well as the practice of discussing and searching for new information on financial matters.

As before, this dimension was originally organized on a 15-item scale, subdivided into three items: self-control, the capacity to discuss, and the search for information.

Therefore, 45 items were created in total with the objective of developing an *autonomy scale for financial matters*.

The students were asked to respond to each sentence in accordance with how well they felt it described their personal inclinations and routine behavior. The options for answering were tested in focal groups with high school students from a public school in Rio de Janeiro. Two possibilities were offered: (1) this sentence “is a very good description of me,” or (2) this sentence “is a very good definition of me.” The first alternative was considered a more adequate choice.

From there, 5 alternative responses to each item were adopted, as follows:

1. This sentence is a very good description of me;
2. This sentence is a good description of me;

3. This sentence is an average description of me;
4. This sentence is a bad description of me;
5. This sentence is a very bad description of me.

This scale was tested largely by CAEd in August 2010, with responses from 24,014 students. They were all second-year public high school students from 6 Brazilian states in which the pilot course was implemented (Ceará, Distrito Federal, Minas Gerais, Rio de Janeiro, São Paulo and Tocantins).

After the first round of questionnaire applications, the initial data analysis led to a re-evaluation of the dimensions originally suggested to the scale. In general terms, the labels of reflexive, emotional and functional autonomy were maintained, but of the initial 45 items, only 15 were selected for the final scale, 5 for each of the autonomy dimensions presented.

A. For the *reflexive autonomy dimension*, four items were selected that, in the face of situations of consumption, suggest a reflexive attitude and one item that marks the student's interest in the daily economic news, as follows:

1. I like to think thoroughly before deciding to buy something.
2. I like to research prices whenever I have the money to buy something.
3. Whenever I buy certain products, I make sure to get information on warranty periods.
4. Whenever I buy more expensive items, I always try to obtain more information on the product's quality.
5. Whenever there is something on the news about the economic crisis, I pay careful attention, because I know it can have an effect on my family.

B. In the *emotional autonomy dimension*, four items were selected that deal with the student's willingness to participate in the family's financial decisions, and one item that

refers to the relationship with peers. The participation in family decisions and the willingness to give advice and one's own opinion in financial matters were treated here as signs of autonomy.

1. I like to participate in the decision-making process whenever my family buys something more expensive for our home.
2. I usually have a critical view of the way my friends deal with money.
3. At home, I usually take part in the discussions about our domestic expenses.
4. I try to advise my parents/caregivers on money matters.
5. I feel prepared to talk about money with my parents/caregivers.

C. In the *functional autonomy dimension*, three of the items selected mark the tendency towards saving and budget control, and the other two refer to a confident attitude in one's ability to self-restrain in order to make a choice. Both the disposition for saving and for being economical were interpreted here as a sign of the youth's perception of being in control of his circumstances.

1. I always try to save some money to do the things I really like.
2. I always like to negotiate when I buy something, even if it is already cheap.
3. At home, I always suggest that we keep some money aside for an emergency or an unexpected circumstance.
4. For buying certain things, I keep a good lookout for promotions.
5. I'm willing to make sacrifices if it is to buy something important.

The Financial Autonomy Scale

The financial autonomy scale is a summative scale, composed of the 15 selected items, with a mean of 50 points and a standard deviation of 20 points. The higher value

corresponds to a more autonomous attitude in the face of financial phenomena. The following tables present the chief statistics related to the scale.

Table 1: Autonomy Scale Statistics No of Items (*)	Cronbach's alfa coefficient	Minimum value	Maximum value	Mean	Std. Deviation
15	0,84	-33,0	95,90	50,0	20,0

(*)the answers from 24,014 respondents were included in the analysis.

Table 2: Item-Total correlation	
Corrected item-total correlation	
I like to think thoroughly before deciding to buy something.	0,36
I like to research prices whenever I have the money to buy something.	0,50
Whenever I buy certain products, I make sure to get information on warranty periods.	0,53
Whenever there is something on the news about the economic crisis, I pay careful attention, because I know it can have an effect on my family.	0,51
Whenever I buy more expensive items, I always try to obtain more information on the product's quality.	0,52
I like to participate in the decision-making process whenever my family buys something more expensive for our home.	0,46
I usually have a critical view of the way my friends deal with money.	0,40
I usually take part in the discussions about our domestic expenses.	0,52
I try to advise my parents/caregivers on	0,57

money matters.	
I feel prepared to talk about money with my parents/caregivers.	0,41
I always try to save some money to do the things I really like.	0,38
I always like to negotiate when I buy something, even if it is already cheap.	0,45
At home, I always suggest that we keep some money aside for an emergency or an unexpected circumstance.	0,58
When buying certain things, I keep a good lookout for promotions.	0,48
I'm willing to make sacrifices if it is to buy something important.	0,21

Table 3 shows the distribution of the student population in four levels of autonomy (described in the chart below), constructed from a mean of 50 points and intervals, corresponding to the standard deviation for the two central categories.

TABLE 3

Population distribution according to the Level of Autonomy

Levels	Interval	Students	%
□ Inferior	□ Up to 29	□ 3,940	□ 16.4
Medium-inferior	30 to 50	7,435	31.0
Medium-superior	51 to 70	8,366	34.8
Superior	70 or +	4,273	17.8
Total		24,014	100.0

<p>Chart 1: Description of Autonomy Categories</p> <p>Inferior</p> <p>Students in this category have little reflexive attitude when faced with opportunities for saving and spending. They find it difficult to think about their future, are less optimistic and have less confidence in their own choices.</p>
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Medium-Inferior and Medium-Superior

In these intermediate/middle categories, the students are more willing to think before they act and are more mindful of the opportunities for saving and spending. They are highly optimistic, but still show some difficulty in thinking about their future, especially in the medium-inferior category.

Superior

In this category, the students show a reflexive attitude in the face of opportunities for saving and spending, are optimistic and confident of their choices and their future.

The data produced in this first application of the scale make it clear that the CAEd financial autonomy scale provided a clear view of the different groups of respondents, fulfilling the necessary requirements to act as an instrument for measuring the impact of the Financial Education Course on the attitude dispositions of its students regarding financial matters.

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