

FINANCIAL EDUCATION IN ADULT AND YOUTH EDUCATION

Marco Aurélio Kistemann
marco.kistemann@ufjf.edu.br

Universidade Federal de Juiz de Fora, MG

ABSTRACT

This article aims to present the problem situations carried out by students of youth and adult education (YAE) in a municipal school in Juiz de Fora (Brazil), during the second term in 2011, in a pilot study conducted in order to check how these students (individuals-consumers) were taking their financial and economic decisions facing the consumer situations, present in their daily lives. This pilot is part of the dissertation "Financial education in adult and youth education", which is at the stage of qualification is included in the professional masters in Math Education at Federal University Juiz de Fora (UFJF).

Keywords: consumption, students of youth and adult education (YAE), financial education, individual-consumer, consumer situations.

RESUMO

Este artigo tem como objetivo apresentar situações-problema desenvolvidas por alunos de educação de jovens e adultos (EJA) em uma escola municipal de Juiz de Fora (Brasil), em 2011, em um estudo piloto realizado com o objetivo de verificar a forma como estes alunos (indivíduos-consumidores) tomam as suas decisões financeiras e econômicas ao enfrentarem situações de consumo, presentes em suas vidas diárias. Este estudo-piloto é parte da dissertação de mestrado "Educação financeira na educação de jovens e adultos", que está na fase de qualificação, fazendo parte do Mestrado Profissional em Educação Matemática na Universidade Federal de Juiz de Fora (UFJF).

Palavras-chave: consumo, alunos de educação de jovens e adultos (EJA), educação, indivíduo-consumidor, situações de consumo.

Introduction

The present work has as central scope perform a qualitative research with students of adult and youth education Basic cycle at municipal school in Juiz de Fora, on issues related to how the financial-economic decisions take forward the consumer need situations, guided by the following policy question: "How do the students of adult education (YAE) at municipal school in Juiz de Fora take their financial and economic decisions when they will consume?". According to Garnica (*apud* BORBA, 2004), qualitative research allows the transience of their results, the impossibility of a hypothesis, the researcher does not have the neutrality, constitution of their understandings, and the means could be obtain by (re)configured and the impossibility to establish regulations in pre-procedure, static and generalists.

This investigation developed in its first stage of research, observing the production of meanings of individuals-consumers of phase VIII (9^o year) in a municipal school in Juiz de Fora. Kistemann Jr. (2011) states that this process is understood as "the process determined by enunciates actions of this subject according to a demand for production of meanings, when dealing with consumer-related actions" (KISTEMANN JR, 2011, p. 33). Then, we have proposed these individuals-consumers, a few problem situations related to their daily life, and the *modus operandi* of their choices, for example, the forms of payment for a product and why they chose to do it that way, with the aim of, in a second moment, analyze the meanings produced by them, from the perspective of the Model of Semantic Fields (MSF).

At a time of global economic crisis, with its repercussions reverberating to the present day in advanced economies and emerging markets, where millions of people meet in unregulated financial situation, in many cases, due to lack of familiarity with the facilities of financial credit and deals with the mathematics implied in financial transactions (KISTEMANN JR, 2011), which highlights the relevance of our research in the area of mathematics education.

According to Bauman (2008), the consumer activities are shaping the several life forms and the patterns of human relationships in consumer society, which, on the one hand, has the merchandise as the nucleus of daily practices and on the other, a permanent orientation in order to the model to be followed has always linked to the Act of consuming.

For the purpose of knowing better our subjects of research, we cognize a bit of their careers while students, and their experiences face to consumer situations, then did interviews that were recorded. According to Brunel (2004),

Recording some conversations is important, because the oral report is presented as a useful technique to register what has not already crystallized in writing documentation, the non-conserved, which disappears whether it does not noted; so it will serve to capture the non-explicit, perhaps even the unspeakable (BRUNEL, 2004, p. 31)

We clarify that we have used a recorder with prior consent of the individuals-consumers of EJA and though, choosing to conduct semi-structured interviews, that occurred, because it is a technique that allows the researcher to obtain data on depth, as well as offering a "much greater flexibility, since the interviewer can clarify the meanings of questions and adapt more easily to people and circumstances in which develops the interview" (GIL, op. cit. p. 118, *apud* GARCIA, 2007, p. 234). These interviews feature have presented a series of open-ended questions, that was made verbally in an order envisaged, in which the interviewer can add some questions for further clarification. According to Dionne and Laville (1999),

The flexibility of this type of interview provides more intimate contact between the interviewer and the interviewee, favoring the in-depth exploration of their knowledge, representations, beliefs and values (DIONNE and LAVILLE, 1999, *apud* GARCIA, 2007, p. 234).

The theoretical foundation of research

The adult and youth education is recognized as a public right of Brazilian citizens, from 15 years old, who did not have access to school, or who for some reason were unable to continue their studies or who were forced to leave school early. In section V of the law of national Education Bases and Guidelines n° 9394/96, in its article 37 has defined that "the education of youth and adults will be aimed at those who did not have access to or continuation of elementary and high school studies at age own."

It is important, when working with the YAE to take into consideration what these students bring knowledge, as well as respect the individuality and the specificities of each one. Within this perspective, Frank (2007) states that the math educators, who work in YAE should understand their students as subjects of knowledge and learning, so that they feel more secure and integrated to do at school.

Fraser (2007), whom a proposal for teaching mathematics should have also, take into consideration the official programs and the prospect of continuity of studies of young people and adults (FONSECA, 2007, p. 70).

According to the Proposed Curriculum for the education of Young people and Adults of the second segment in the basic education, Volume 3, the curriculum of Mathematics for YAE students should contribute to the enhancement of cultural plurality and create conditions for the student has become an agent for his environment transformation, participating more actively in the world of work, social relations, politics and culture. And the math activity must also be integrated two inseparable roles, the training that has directed to the development of intellectual capabilities for the structuring of thought and functional, which is directed to the application of intellectual capacities in practical life and to solve problems in various areas of knowledge.

The responsibility for the failure of school youth and adults has often assigned to mathematics. However, social and economic factors are also responsible for the

abandonment of studies among students at the age that they have to attend school. On the scholastic failure, Brunel (2008, p. 14) asserts that

We know that there are students who do not satisfactorily correspond to certain knowledge and skills that are required in the school and, often, are classified as failing, without more detailed analysis of their history or their lives.

There is a great responsibility, as educators, to the audience of the EJA. According to Brunel (2008, p. 34):

The role of the educator in this mode of teaching is extremely important, because they have a school history permeated by problems, not only in the cognitive field, but in the social, economic and emotional.

Fonseca (2007, p. 15) recommends that we, educators of YEA, understand our students as "subjects of knowledge and learning". And he warns that the public of the YEA is marked by different life histories, but which are marked by "dynamic of exclusion" (FREEMAN, 2007, p. 31). In addition, mathematical educators convened that:

agree with a policy of inclusion and ensuring space for young people and adults in school, taking them as cultural subjects, which, as such, present prospects and expectations, demands and contributions, challenges and desires in relation to School Education (FONSECA, 2007, p. 31-32).

Many young people and adults of the YEA present, even if learned informally or intuitive, some mathematical knowledge. Their personal experiences and experiences can contribute to the enrichment of math classes. According to Fonseca (2007, p. 26):

The whole process of constructing knowledge, particularly of an adult student of EJA, is permeated by their experiences, whose memory is mobilized at certain times of the school teaching and learning interactions, why not refer to the facts of personal interests, but because they are just memories "that fit within the framework of our social institutions – contributed by those who have been socialized - otherwise they would not remember (SHOTTER, 1990, p. 148, *apud* FONSECA, 2007, p. 26).

Faced with this reality, we believe that working with the financial education in this mode of teaching, can be enriched with the life experiences brought by their subjects-consumers.

We understand that educating our students financially can go far beyond the teaching of some techniques and formulas of financial mathematics. We believe that this subject is very important, but it is not enough for financial education. Then, agreeing with the issues that Muniz says being part of the financial education of students who will

become an integral part of Brazilian economic population about the action to educate financially, so

Learn math to understand financial situations; understand the behavior of money at the time; consciously organize their finances (future) personal; discuss mathematically the conscious use of credit; understand themes of economy as GDP, inflation and its various indices, IOF, among others; Learn, connect and use financial mathematics in geo-economics issues have already addressed, but not intertwined, in geography classes; understand the main financing systems (PRICE and SAC), using the technological resources widely available, such as spreadsheets and scientific calculators; reflect and analyze mathematically increase the life expectancy of the Brazilian and their impacts on the national economy, including their own retirement, pension and general insurance; discuss and analyze quantitative and qualitative impacts of geopolitical and social problems in the economies of the region, taking into consideration the feasibility of mathematical tools studied, among others. (MUNIZ, ENEM Salvador-Bahia, 2010).

In a second stage of our research, we will analyze the production of meanings through the financial and economic decision making of individuals-consumers of the EJA to consumer situations, using the central ideas of the Model of Semantic Fields (MSF).

The MSF is an epistemological model that allows us to understand some aspects of the production process of meanings in mathematics and, in our case, in financial mathematics. According to SAUNDERS (1997), when a teacher has a look geared to the production of meanings, with the intention of creating a communicative space in his classroom, a certain posture it is required:

First we listen more and talk less. ... In addition, this production (the meaning) is inside activities, which should be planned and directed by the teacher to create in a communicative classroom (p. 100).

We also believe that,

Being the classroom this communicative space shared by all the various methods of production of meanings should not be tiered and headed for the one governed by mathematical academic discourse. Of course, this should be present in such a communicative space and, therefore, to be shared by all, but not placed as the perfect version of the other (LINS GIMENEZ, 1997, *apud* OLIVEIRA, 2002, p. 26).

We believe that in any cognitive process, our researcher or educator look should be geared to the production of meaning, since the diversity of modes of production of meaning enriches the process (OLIVEIRA, 2002, p. 26).

Knowledge in the design of the model is something that is produced and broadcast. Lins (1994) states that "knowledge has always a subject, that is precisely the subject of enunciation".

Lins believes the "street knowledge" as knowledge too. A knowledge, different and in no way inferior to the classroom (CASSOL, 1997, p. 19); and opposes the speech of those who argue that "it is necessary to bring reality to the classrooms" (LINS and GIMENEZ, 1997). That is meant by this phrase is that knowledge of the street is not knowledge and that, as much as we can use it as a starting point for learning.

According to LINS and GIMENEZ:

The idea of valuing what the street knows only as a starting point is part of a speech that, although it seems reasonable from the didactic point of view, is wicked from the cultural point of view (LINS and GIMENEZ, 1997, p. 19).

Oliveira (2011) mentions that Lins & Gimenez (1997) used the mathematics of math and school street to "speak of the importance that approach mathematical meanings (mathematics) at school; do not delete the meanings non-mathematicians (from street mathematics)" (OLIVEIRA, 2011, p. 23). In this way, we believe that it is important to use in the classroom, the experiments experienced by individuals- consumers of YEA as regards their decisions against consumption, since

(...) the role that each other (meanings) meet is the same, as part of the Organization of human activity. Working only from the perspective of that mathematical meanings are absolutely superior to non-mathematical meanings, the school has had the effect of strengthening the students ' cognitive possibilities, when it should enlarge them; the fact that the mathematical meanings are more general or more "powerful" is not what is at stake here: what we want is that our students are also able to work with mathematical meanings, but not just with them. And just based on the coexistence of mathematical and non-mathematical meanings in school who could constitute a common legitimacy, which can, in turn, prevent school mathematics is perceived as useless, the knowing whose reason to be ceases to exist when the schooling that involves mathematics (LINS GIMENEZ, 1997, p. 28)

Problem-situations

We present below some of problem situations carried out by individuals-consumers of adult and youth education, emphasizing what we consider relevant in their speeches. We clarify that the names used herein are fictitious, preserving the identity of individuals-consumers.

Problem-situation-1

In 2014, the World Cup, which will be held in our country, D. Julia anticipates and begins to search for a new TV. She is connected with technology, and wants to buy a 32 "TV that saw in the store Hot Point, whose announcement is below:

TV 32 "LED with HDMI inputs and USB and Digital Converter.

In cash: R\$ 1149.00 or 12 monthly installments of R\$ 114.90.

In addition, the store Hot Point offers an extended warranty in accordance with the following table:

Table 1: The prices

| | |
|--------------|------------------------------|
| By 12 months | 12 x R\$ 9,92 without rates |
| By 24 months | 12 x R\$ 15,75 without rates |
| By 36 months | 12 x R\$ 29,08 without rates |

a) Assuming that you have also been interested in purchasing this TV, what would your payment be option? In cash or by installments Why?

b) Would you opt for the extended warranty? Why?

Goals of this issue:

Check what type of payment chosen by the individual consumer and the reasons for your choice.

Answers:

Lúcia:

The first answer

- a) "My option is payment in cash, the value is R\$ 1.149,00. This is because by installments, the value increases to R\$ 1378,80 (12xR\$114,99), I will make a loss of R\$229,80".
- b) "I opt for the extended warranty by 24 months, because the TV will cost for me R\$1338,00. This value is lower than the installments, without include the extended warranty. It is good, because I will have the extended warranty against any type of defect".

In this case, the individual-consumer considers the cash payment as the best option, because she would save \$ 229.80, in relation to the final price of the financing for this product. And, secondly, she would make the option for extended warranty, claiming to be advantageous, since the value of the TV with the guarantee of 24 months would come out with value less than 12 months plan of this TV. This is clear in her speech, in the last sentence of "letter B", who believes that the extended warranty comes into effect as soon as she acquires the product. However, before the extended warranty in force, there are 2 types of warranties that are provided to her: the legal guarantee, which is provided by law (article 26 of the Code, consumer law), during the period of 90 days from the purchase of the product (purchased with invoice) and the contractual

warranty (supplied by the manufacturer of the product), which begins after the 90 days of legal guarantee generally, 9 months.

Newton:

The second answer

- a) "In my case, I opt to payment in cash, because by installments this product would increase 20%".
- b) "I would not opt to extended warranty, because with the extended warranty, the consumer has to pay prepayment".

This individual-consumer would make the option by payment in cash, claiming a savings of about 20 on the financed amount. And, in this case, he would make the option for extended warranty, because he believes that it should not pay before the product has some sort of defect.

Bárbara:

The third answer

- a) "My option of payment would be in cash, because by installments, it would be more expensive than in cash".
- b) "No, because I think that the TV has already been with the extended warranty".

This individual-consumer would opt for payment in cash, because in her opinion, would be cheaper than the option by installment. It would not make the option for the extended warranty and, in her speech, we can realize that unaware of legal and contractual guarantees.

Felipe:

The fourth answer

- a) "By installment because it is easier to buy".
- b) "No because it will increase the value by installment".

This individual-consumer would opt for financing. We can perceive in his reply, the presence that the media exerts on individuals-consumers. It is common, in advertisements for department stores, the use of speech: "benefits that fit in your Pocket", a fact that led this individual-consumer to the belief that "it would be easier to

buy". He would not make the option for extended warranty, by increasing the value by installment.

Dhiego:

The fifth answer

- a) "I would give the first payment of R\$500,00 and I would pay the other part by installment".
- b) "Yes, because I would not like to buy the TV and after 3 months, it had problems, and I did not have warranty for this".

This individual-consumer would propose a form of payment other than those that were proposed by the store. Also, in his response, we can realize that he ignores the two guarantees that he has right.

Victor:

The sixth answer

- a) "Because of the facilities to pay by installment, I would choose this way to pay, but I know this will be expensive R\$229.8".
- b) "Yes, because I would have a "greater security" and it is not so expensive for me".

In speaking to this individual-consumer, as well as Felipe, is a clear presence of the influence that the media exerts on individuals-consumers. I would opt for extended warranty by believing in a "greater security" and find ridiculous portions of that security.

Problem-situation-2

If a product has its price increased by 20%, to return to the original price the discount must be 20% or not? (Problem-situation adapted from the book "Everything is Math"- Author: Luís Roberto Dante, p. 231-9° year)

Objective: to verify the individuals-consumers understand about surcharges and discounts

Camila:

The seventh answer

“Yes, if a product has its price increased by 20%, to return to the original price the discount must be 20% that returns to the same price”.

This individual-consumer, in her speech, presents a belief that the discount must be 20% to return to its initial value, giving up performing calculations to prove her assertion.

Lúcia:

The eighth answer

“Yes”

Lucy makes the calculations on a commodity that costs R\$ 100.00. In this way, 20% on R\$ 100.00, that is R\$ 20.00 and then we get R\$ 120.00. After that, remove the same R\$ 20.00 (20% on R 100.00) R\$ 120.00 and no, 20% on R 120.00, a fact that leads to the conclusion that the product back to its initial value with the discount of 20%

Bárbara:

The ninth answer

Reflections:

“It will not be, if it is 20%, it does not come back in its initial value”.

Barbara stipulated the value of R\$400.00 for the product and, through calculations, showed that with the discount of 20%, this product would not return to its initial value. In her explanation, 96-480 would have the same value of 480-96.

Newton:

The tenth answer

“To come to the value R\$100,00. I have to give a discount of 16,7%, it is left over 4 cents”.

Newton, in his calculations, states that for the product back to its initial value, it would need a discount of approximately 16.7%, and it is not 20%.

Dhiego:

The eleventh answer

“No, because if you take out 20% for 120 it will give 108, and if you increase 20% in 100, it will be 120 and 20% of 120 is 12”.

This individual-consumer has also speculated R\$ 100.00 for the initial value of the product. In his calculations, 20% of R\$ 120.00, that would R\$ 24.00, he stated: "If you get R\$ 20 of R\$ 120.00, it would give R\$ 108.00". And, in this way, he said that the product would not return to its initial value with the discount of 20%.

Jeferson:

The eleventh answer

"No, because the value that increased, decreased 20%, it will be next to the first price, but it is not the same.

Example: The product cost R\$250,00. These R\$250,00 is equivalent to 100%. If we have an increase of 20%, the price will increase to 120%, consequently the value has also increase, if we take out 20%, its does not return to its first price".

Peters states that the initial value of the product would not be the same with a discount of 20%.

Dhiego:

The twelfth answer

"No.

Example: If 20% of 100% is 120%, 20% of 120 will be 100".

In his speech, we can realize that it has also set the initial value of R\$ 100.00 for the product, and that with the addition of 20%, the value goes to R\$ 120.00 and that, with 20% discount on R\$ 120.00 the initial value is not R\$ 100.00".

Problem-situation-3

If you want to buy this dress for you, or give it to your wife, or your girlfriend, or your friend, what payment would be your option? Why?

Goals:

Check which payment method is chosen by the interviewees and the reasons for their choice.

The promotion

Promotion of Dresses
In November
30% by installment
40% in cash*
*check or cash

Wanderley:

The first explanation

RIPEM V.3, N.2, 2013

“It would be 40% in cash.

171.00

43.20

127.80 would pay one hundred and twenty-seven reais and eighty cents in cash with discount and buy another gift to follow the dress. However, the payment by installment could be tempting, but you take on a commitment to pay after and not always the periods are good. We will have the beginning of the year, with a lot of bills IPTU (tax), scholar material, IPVA(tax) and others. The best is in cash, since you are free of the bills”.

It was legitimate for that individual-consumer, who would be 40% rebate in the amount of R\$ 171.00 and 40% of R\$ 171.00 would be R\$ 43.20. It emphasizes that his option by installments, could compromise other commitments that we have to start a new year.

Newton:

The second explanation

“In my case, I would pay in cash, because I do not like to pay tax.

This individual-consumer emphasizes that would opt for payment in cash by dislike of "paying taxes””.

Lúcia:

The third explanation

“If I have the money to pay in cash without doubt, I always pay in cash. We should always pay in cash, because we make profit”.

Lucia reveals that if you have money to make the payment in cash, we will make profit.

Bárbara:

The fourth explanation

“My option is in cash, because it is always good, and without debts. When we can pay, we can do it by installment, but if you have the money at the moment, and this money is not for other thing, it is always good to buy in cash”.

Barbara tells us her preference for cash payments.

Jeferson:

The fifth explanation

“I buy in cash, because the discount is bigger and then I can buy more products”.

This individual-consumer justifies his option for cash payment, and then he has more money to make new purchases.

Vitória:

The sixth explanation

"I would buy by installment. It is the best method of payment. And by installment, I could buy more quantity in store".

It is legitimate to Vitória that the payment of her purchases guarantees her consume more products.

Partial Results

In this section, we present some of the partial results from the material collected during our field research (pilot) – whether through problem situations or problem-conversations during the second half of 2011, in a municipal school in Juiz de Fora (Brazil). We emphasize that the analysis of the production of meanings of these individuals-consumers on completion of problem-situations will be for a second time of our research.

For the majority of individuals-consumers of YAE, the Financial Mathematics is present at the time of a purchase, either in the form of cash payment and the deadline or in the calculation of discounts. During one of our conversations, Lucia tells a purchase that did: "Today I bought a clock and this clock, the price in cash and by installment was the same price so I purchased ... what I saw in mathematics, we should not pay taxes, because did we always spend more money in the taxes? As long as we can afford it, we're winning, because there is not increase in product ". However, the purchase is done by her was: "installment, but within cash, did not increase" (emphasis added). In her speech, we realize that Kisteman Jr. (2011) calls "monetary illusion":

By presenting possibilities of monetary illusion, as price by installments equal in cash, companies seek to provide a purchasing power (empowerment of the individual-consumer), that the patient-consumer has often suspects that it does not have, but thanks to the compelling marketing strategies can start believing that even he has a power to consume (KISTEMAN Jr., 2011, p. 201).

When these individuals-consumers decide to buy a product, take into account the following issues: price, deadline, quality, brand, "what makes you want to buy", which is required to buy and the comfort. Among younger consumers-individuals, preference prevails by brand and by that "makes you want to buy." Lucia (50 years) has also made her choice for quality and product brand, and reveals to us that "I'm looking to replace my refrigerator, but only buy if it is a Brastemp Frost Free. If it is not this way I don't

buy, I am with mine "(emphasis added). Kistemann Jr. (2011) reveals that the experience is a factor that interfere in the decisions of consumption of individuals-consumer

In some enunciations, we realize that, as the individual-consumer matures, consumption decisions can vary. Experience in consumer situations, that has not been successful, promotes changes in an individual's decision making. We have often learned in the process, we would say, more improvised, i.e. by try-error (KISTEMANN JR., 2011, p. 196).

With respect to the payment method they prefer, there is a division of opinions. Some people prefer payment in cash, while others see the need by installment their purchases. Barbara reveals that "I save up the money that I receive (allowance) and buy in cash". Diego has already told us that it depends on the value of the product he wants to consume: "There are two ways. When the price is too high, I usually pay by installment, but do not really like it". Victoria believes that buy by installment is easier: "the payment book is easier". Kistemann Jr. (2011) reveals that, for the market, the good consumer is one that share their purchases, because "who sells want to be bound by the buyer" (p. 200).

We have sought as a result of this work, the making of an educational product that will be connected with other math teachers, as well as the preparation of a material for teachers of adult and youth education can use it in their classroom, in an attempt to assist their students to learn, to know and to understand the production of financial-economic meanings in Mathematics Education for young people and adults (EJA).

References

- BAUMAN, Z. (2008). *Vida para consumo: a transformação de pessoas em mercadoria*. Rio de Janeiro: Jorge Zahar Ed.
- BORBA, M. C., (2004). *A pesquisa qualitativa em Educação Matemática*. In: Reunião Anual da Associação Nacional de Pós-Graduação e Pesquisa em Educação, 27, 2004. Caxambu: ANPED.
- BRASIL, (2002). *Secretaria de Educação Fundamental. Proposta Curricular para a Educação de Jovens e Adultos: Segundo Segmento do Ensino Fundamental: 5ª a 8ª série, v.3* (Matemática, Ciências, Arte e Educação Física). Brasília: MEC.
- Brunel, C. (2004). *Jovens cada vez mais jovens na educação de jovens e adultos*. 2 ed. Porto Alegre: Mediação.
- DANTE, L. R. (2002). *Tudo é Matemática*. 8ª série. São Paulo, Editora Ática.
- FONSECA, M.C. F. R. (2007). *Educação Matemática de Jovens e Adultos: Especificidades, desafios e contribuições*. Belo Horizonte: Autêntica.

GOMES, C. R. *A Prática da Professora e a Construção das Identidades de Gênero em Escola da Rede Municipal de Aracaju*. [Disponível em: http://www.scienciaplena.org.br/sp_v3n5p229_237.pdf] 13/08/2012.

KISTEMANN JR., M.A. (2011). *Sobre a produção de significados e a tomada de decisão de indivíduos-consumidores*. Tese de Doutorado – UNESP - Rio Claro-SP.

LINS, R. C., GIMENEZ, J. (1997). *Perspectivas em aritmética e álgebra para o século XXI*. 3. Ed. Campinas: Editora Papirus, V. 1. 250 p.

LINS, R. C. (2008). *A diferença como oportunidade de aprender*. In: Anais do XIV. ENDIPE (Encontro Nacional de Didática e Prática de Ensino), p. 530-550.

LINS, R. C. (1994a). *O Modelo Teórico dos Campos Semânticos: uma análise epistemológica da álgebra e do pensamento algébrico*. Revista Dynamis. Blumenau, abril/junho, 1(7): 29-39.

MUNIZ, I. J. (2010). *Educação Financeira: Conceitos e Contextos para o Ensino Médio*. In: X Encontro Nacional de Educação Matemática – X ENEM, 2010, Salvador. X ENCONTRO NACIONAL DE EDUCAÇÃO MATEMÁTICA.

OLIVEIRA, V. C. (2002). *Sobre a Produção de Significados para a Noção de Transformação Linear em Álgebra Linear*. Dissertação de Mestrado – UNESP – Rio Claro-SP.

OLIVEIRA, V. C. (2011). *Uma leitura sobre a formação continuada de professores de Matemática fundamentada em uma categoria da vida cotidiana*. Tese de Doutorado – Unesp - Rio Claro-SP.

SILVA, A. M. (1997). *Uma Análise da Produção de Significados para a Noção de Base em Álgebra Linear*. Dissertação de Mestrado. Rio de Janeiro: Universidade Santa Úrsula.