

The choice of the teaching profession from the perspective of the undergraduate students of the biological sciences course of the IFCE Campus Acaraú



<https://doi.org/10.56238/uniknowindevolp-124>

Maria Denice Sousa

Graduated from the Degree Course in Biological Sciences of the Federal Institute of Education, Science and Technology of Ceará - IFCE.
E-mail: sousadenice9@gmail.com

Larissa Camila Martins de Oliveira

Master's student and Specialist in Psychopedagogy at the Federal University of Ceará; Specialist in Teaching for Professional Education by SENAC. Graduated in Pedagogy from the State University of Ceará - UECE. Professor of Basic, Technical and Technological Education of the Federal Institute of Education, Science and Technology of Ceará - IFCE.
E-mail: larissa.camila@ifce.edu.br

Marília Duarte Guimarães

Doctor student and Master in Brazilian Education from the Federal University of Ceará - UFC. Graduated in Pedagogy from the State University of Ceará - UECE. Professor at the Federal Institute of Education, Science and Technology of Ceará - IFCE.
E-mail: mariliaguimaraes.trab@hotmail.com

ABSTRACT

This work is part of the result of a monograph and discusses the reasons around the option for initial teacher training, a process loaded with doubts for most people. The choice for a profession is personal and also social, since it involves preferences, but

also the opportunities that the subject finds in his context. The work aimed to investigate, the pretensions of the students of the Degree Course in Biological Sciences of IFCE – Campus Acaraú, to opt for this graduation and the future intentions pertinent to the formation. As specific objectives we seek: (1) To describe the reasons that led students to choose the course; (2) To understand how academic experiences change the way of looking at the teaching profession; (3) Identify among the students the representativeness in future teaching performance. It was held at IFCE/Campus Acaraú, with students from the 7th and 8th semesters of the degree course in Biological Sciences. Data were collected through questionnaires produced in Google Forms, analyzed and translated by the transcription of clippings extracted from the records of the subjects in the questionnaires, followed by a discussion presented in an analytical expository text, with interpretations made according to the literature related to the problem explored. The results showed that one of the aspects that greatly influenced the choice of the course was the fact that there are only two degrees at IFCE/Campus Acaraú, as options in the region, in higher education, in a public institution. But also, they had reports of vocation for the area of Biology, and for teaching.

Keywords: Biological sciences, teaching identity, profession.

1 INTRODUCTION

The moment of choosing the initial training course is a complex process because it involves several factors from personal to social issues. According to Aranha and Souza (2013), access to higher education occurs differently between social classes, and that many of those who overcome economic problems and enter university, achieve through courses that represent less value before society, such as teacher training, which are usually sought by students of precarious basic education who take this path in the expectation of changes related mainly to the financial situation, thus presenting indirect attractiveness to the teaching career.



It is known that the teaching class faces great challenges, caused mainly by the changes that society has been going through. Felicetti (2018), considers that:

The choice for teaching may be associated with the identity of teachers and the singularity of their function, because even with a discouraging scenario given to the teaching profession in Brazil, there are still, although in insufficient quantity to the required demand, freshmen and graduates in and from the undergraduate courses, as well as new teachers entering the teaching career (p. 220).

Thus, the desire arises to investigate why even during the difficult realities related to the teaching community are still candidates for this training? Because the course of Biological Sciences, has concomitant training with research in specific areas that the biologist can act, which often leads the student to identify more as a researcher in these peculiar fields, than as a teacher, despite having opted for a degree (BRANDO; CALDEIRA, 2009).

In this perspective, the main objective of this work was to investigate, the pretensions of the students of the Degree Course in Biological Sciences of IFCE – *Campus Acaraú*, to opt for this graduation and the future intentions pertinent to the formation. As specific objectives we seek: (1) To describe the reasons that led students to choose the course; (2) To understand how academic experiences change the way of looking at the teaching profession; (3) Identify among the students the representativeness in future teaching performance.

2 METHODOLOGIES

This is qualitative research of the descriptive-exploratory type, carried out through data collection using questionnaires produced in Google Forms as an instrument. The study was conducted at IFCE/Campus Acaraú, with students from the 7th and 8th semester of the undergraduate course in Biological Sciences.

The research was divided into two stages. The first occurred through e-mail communication to the Academic Control Coordination Office (CCA), and to the Department of Education (DENS), where information on the number of students regularly enrolled in the 2020 semester were requested.¹ Then the questionnaires were sent to the respondents by e-mails, with a deadline of 10 days for return. The entire data collection process took place between the months of November 2020 and December 2020.

The data were organized from the contents obtained in the questionnaires, analyzed and translated by the transcription of excerpts extracted from the records of the subjects in the questionnaires, followed by a discussion presented in an analytical expository text, with interpretations made according to the literature related to the problem explored.

In the elaboration of the results of qualitative research, there is a diversity of aspects to be considered from the ethical point of view, among which are the participants, the place and institution



studied, which should be kept in description, because just as the researches can benefit the groups, they can also harm them (MINAYO; GUERRIERO, 2014).

Thus, we emphasize that the study was submitted to the Research Ethics Committee (CEP) of IFCE, and developed only after the favorable opinion. In addition, the authorization of the General Directorate of the *Campus* was granted, and the study participants were informed of the nature of the work, objectives and purposes through the Term of Free and Informed Consent (ICF), a document that was delivered, along with the questionnaire.

3 THEORETICAL FRAMEWORKS

3.1 INFLUENCES FOR THE CHOICE OF INITIAL TRAINING

The choice of initial education can be described as something that originates in the first years of schooling, and that the trajectories of individuals are determined by numerous factors. Thus, the professional choice, in addition to having a personal dimension, which allows the individual to decide not only what to do, but what to be, also assumes a social dimension, to the extent that the type of choice is directly related to the performance of the professional within the social group in which he is inserted (CASTRO; BRANDON; NASCIMENTO, 2011).

For Silva *et al.* (2016), both self-knowledge can influence this chain, as well as the sociocultural environment in which one lives. Since the family and the school represent a great influence in the selection of the profession. Because, when it comes to family participation, parents when involved in the process of professional choice of the child, has the tendency to reason more objectively associating the salary gain to the choice, while the young person has a more romantic vision, in the sense of the dream of being like someone in whom he mirrors himself.

Thus, the influence exerted by parents, friends or other people in social life is not always perceived by the subject. Because during the life of individuals, there is an internalization of values that are present in the representations about the professions, making their ideals generally end up corresponding to the ideals of their class and their social group (CASTRO; BRANDON; NASCIMENTO, 2011).

Even so, all or most people tend to opt for a job imagining that it is one that will bring satisfaction in exercising it, and that this can provide a sociocultural recognition, with fair conditions of professionalism, and that both maintains survival and the *status* of profession (BRANDO; CALDEIRA, 2009).

Regarding the teaching work Brando and Caldeira (2009), they still consider that for someone who is graduating in Degree in Biological Sciences, it is more interesting the "*status*" that the laboratory activity provides, than that which the teaching activity can provide. And this view of



students can be much greater when they are instigated by university professors to these practices, leaving the teaching ones aside.

Associated with what has already been mentioned, it also has the knowledge that everyone has of what they will find in the classroom, even if it is little. In addition, Aranha and Souza (2013), reinforce that there is also the discouragement caused by the phenomenon of precariousness of the working conditions of the teaching category, caused by the loss of prestige, respect, purchasing power among others that contribute to the lack of interest in teaching.

3.2 DISCUSSION ON THE CONSTITUENTS OF TEACHER IDENTITY

The concept of teacher identity needs to be understood as a state that progresses and has development, both in the personal and in the collective (GARCIA, 2009). Cerqueira and Cardoso (2010), believe that many teachers are confused before and already in the exercise of the profession, and that before recognizing themselves as teachers, they also go through the phase of personal recognition until they actually define themselves professionally.

For it is in the conviviality with other education professionals, whether in the university or in the daily environment of the school, that individuals can insert in their particular way positive things from the existing models of teachers observed.

By corroborating these ideas, Pimenta (2009), treats this issue of professional identity as something that is built based on the social meaning of the profession; of the revision of both these meanings and traditions. But also, for their life stories, representations, and relationships with other teachers, schools, and other groups. Therefore, there are several factors that can influence the individual to identify with the teaching profession, undergoing changes throughout the professional practice.

However, regarding the construction of the teaching identity, Felicetti (2018) says that:

Social values have high relevance among students in the area of education, this evidences the intimate relationship between personality, choice and affinities with the profession. However, it is in the process of teacher education that the choices and intentions towards the profession are strengthened. Thus, the teaching profession is associated with the teacher's identity and the singularity of the social function that it needs to exercise, being confused the collective progress with the project and the individual ambitions of the teachers, as well as with the teaching purpose that it is responsible for (p. 219).

For the author, identifying with teaching is something that emerges from the natural along with the relationships experienced in social groups, but it is in training that the pretensions in the teaching career are really established. Nóvoa (2017), collaborates by adding that becoming a teacher is transforming a predisposition into a personal disposition. And that it is necessary a follow-up, from the entrance to the university, to occur a reflection on the profession, in the sense of combating phenomena such as evasion, and future problems, such as "demoralization" and "malaise" of teachers.



4 RESULTS AND DISCUSSION

4.1 STUDENT PROFILE

Participated in the research 22 students of 7th and 8th semesters of the Degree in Biological Sciences, with a percentage of 36.4% of male representatives, and 63.6% of female. This is similar to the data from the 2017 Higher Education Census, which reveals women in the majority in the number of undergraduate enrollments, with 70.6%, and men 29.4%.

Regarding age, there was a higher percentage between 23 and 25 years (59.1%). And we highlight a higher concentration of people over 28 years old, (18.2%), representing a much higher number than students between 20 and 22 years old, (13.6%).

4.2 REASONS TO JOIN THE COURSE

The analysis of the answers regarding the factors that led the students to opt for the course show different explanations. The statements of the subjects below reveal that the reason they decided to enter the undergraduate program was their interest in the area of Biological Sciences.

Because I have always been passionate about nature and wanted to know how ecosystems worked and to know the fauna of the environments. (A3)

Biology has always been an area that I identified with (identify), so I could not pass up the opportunity to study Biological Sciences at IFCE. It is also worth mentioning that the Institute is close to my city of origin, which also influenced a lot. (A4)

In the previous reports, it is evident how much the students like the course they have chosen. However, it is also notable in the comment of participant A4, that another factor, such as location, that is, the issue of the proximity of the institution to the city where he resides, influenced his decision.

In the reports of A14 and A22, the reason for choosing the course was based on the aptitude of teaching arising from the influences exerted in the family context. As can be seen below.

When I graduated, I didn't know exactly what I wanted to study, but I always wanted to be a teacher, so I chose Biology because it was the closest to home and I always thought IFCE was a good educational institution. (A14)

My parents are teachers and coincidentally, they have degrees in biology. From an early age I had a very strong presence towards teaching, as I saw my parents working and often taking work home. Thus, I awakened a passion for Teaching and specifically for Biology. Although they didn't want me to be a teacher, because of the hard work and little appreciation, I still chose this path. (A22)

In the report of A14 can also be observed the recognition of the educational institution as a reference in society, being an important point in the choice for the course. From the speech of A22, it is verified what Pacheco *et al.* say. (2017), that the greatest influence on people's choice of profession, occurs within the family environment. What is perceived when the student brings the interest for



teaching in the field of Biology, making reference to parents as instigators of this desire, even if it occurred indirectly. In agreeing with the author, Ribeiro *et al.* (2018, p. 164), also states that:

The professional choice is an element that is rooted in historical processes, in desires that are of the subject itself, but that are often manifested by the will of others. This other is usually family, friends and teachers, who seek to guide the choices from their practices, conceptions about the course and, consequently, about the profession that a given individual intends to follow.

For Pacheco *et al.* (2017), it is the parents who participate more actively in the professional choices of their children, either because they have more life experience, because of the responsibility they have in the role of parents to train them, or because of their expectation of being able to achieve, through their children, their life projects that have been postponed or that have been unsuccessful.

Often parents are dissatisfied with the profession and this can also influence the choices of children, favorably or not. In the case of the testimony of A22, it shows that the parents, because they had the experience of teaching, did not want their child to follow the same path, because they knew the difficulties that exist in the teacher's work, but still the child's choice was for the licentiate degree.

On the other hand, the participant (A15), in his statement, says he has an affection for the area of teaching, but wants to work in the research. "*Although I am studying for a bachelor's degree, I intend to direct my master's degree to the area of research and work in it. I like teaching, but my goal is research.*" (A15)

The report of A15 is similar to what is exposed by Vasconcelos and Lima (2010), when it points out that it is very likely that initially the plan of many undergraduates could be the teaching career at the basic level. However, living at the university with research groups not directed to pedagogical studies may encourage them to change their attitudes. Since the course makes it possible to work in research and in various non-academic activities.

For the authors, these students come to see the performance in research in the area of Biological Sciences, with publications of articles in scientific journals, among other opportunities of this same bias, as a greater value for their curricula. This reveals a perspective still present in teacher education courses, which separate research from teaching and do not understand the teacher as a researcher.

Among the justifications given by the participants of the research, about what led them to attend the Licentiate Degree, is the fact that the IFCE *Campus* of Acaraú offers only two higher level courses. Making these students have only two alternatives that compensated them. Next, this claim can be proven through the records. "*For being one of the two options of higher education of the Acaraú Campus*". (A10); "[...] *It wasn't what I really wanted, but on campus there were only two courses offered, in which I chose Biological Sciences.*" (A21).



These reports show that some choices were not made by priority, but by lack of options. This fact leads us to realize that the expansion of the offer of courses at IFCE Campus Acaraú, would give more opportunities to these students.

Along with this problem of few offers of higher education courses in the IFCE of Acaraú, there is also the issue of being the only public institution that offers Higher Education in the city, which greatly influences the choice of subjects, according to the following reports: "*It was the free course closest to home*". (A12); "*Because it was the most affordable option.*" (A13).

In view of the above, we highlight the speech of A12, which refers to the scenario of access to higher education. That despite still being deficient, the Higher Education Census (2017), shows that the federal network doubled in size between the years 2007 to 2017, initiated with the policy of internalization and expansion of universities, colleges, and federal institutes linked to the MEC and other ministries, in compliance with the National Education Plan (Law No. 10,172/2001). Considering that 14% of enrollments are in the Federal Institutes (IFs) and the Federal Center for Technological Education (CEFETs¹), it is still necessary to grow these numbers so that better results can be achieved.

From the previous records, it is also possible to realize how much the entrance to free Higher Education is a necessary right that needs to be guaranteed and democratized, because it enables the rise of a class of the most vulnerable population, which without this chance would be more difficult to conquer places that were previously privileges of those who have comfortable economic conditions.

4.3 WHAT CHANGED AFTER THE EXPERIENCES IN THE COURSE RELATED TO THE TEACHING PROFESSION

The students were asked if after entering the degree in Biological Sciences, they had changed their view regarding the teaching profession, and in which aspect. Almost all of them answered yes, making it clear that after they had gone through much of their teacher training, a lot has changed. Some see the profession with even more admiration, but recognize the existing difficulties, and others can realize that they can tread other paths beyond teaching.

Another issue perceived in the reports was the construction of the teacher's identity from practice.

Moreover, when you stop being a student and become a teacher, you see the teaching world with new eyes, you start to admire the profession, you notice how challenging it is, both with regard to training and performance, and with regard to the difficulties faced by an educator. Without a doubt, it is one of the most beautiful professions that exists. (A13)

¹ **Centro Federal de Educação Tecnológica (CEFET)** are Brazilian educational institutes belonging to the federal sphere and linked to the Ministry of Education. CEFETs offer courses at various levels (high school, technical and higher). With the creation of the Federal Network of Professional and Technological Education (Law 11.892/2008), most of the CEFETs were converted into Federal Institutes (IFs), becoming part of the network of the Federal Institute of Education, Science and Technology. However, some still remained as CEFETs.



Here, participant A13 stated, how essential the transition from student to teacher is to know the challenges of the profession in its different elements that compose it.

According to Pimenta (1999), it is in the course that students go through the need to perceive themselves as teachers, or future teachers, working in groups in schools, and living with people with different languages and knowledge. What the author considers important even for the work, both interdisciplinary and collective in schools.

According to Aranha and Souza (2013); Soft; Caldeira (2009), the presence of the figure of the teacher is early in people's lives, as a clue to the idea of how this work can be. That's because during school life we go through a lot of teachers. This approach can arouse interest in teaching. The doubts and insecurities arising from inexperience can be transformed throughout the initial formation. Thus, we can highlight the importance of the degree course revealed by A14: "*Yes, even though I wanted to be a teacher, I still had a certain fear, but after the course I was surer that I want to be a teacher.*" (A14)

As can be observed, A14 brings in his record the course as an influence for the certainty of wanting to work as a teacher, even having an initial desire for the profession. Here, it can be interpreted that the licentiate degree, as those who constitute it, especially the teachers, are playing their role, which is according to Nóvoa (2017), "[...] to allow each one to build his position as a professional, to *learn to feel like a teacher*" (p.1123).

After the experiences acquired during graduation, some students know and plan paths inherent to their training that go beyond the classroom. "*... In addition to teaching, I can work in research, set up my own environmental consulting company, do public tender, etc.*" (A8); "*Yes, because in addition to teaching the course, the course provides new horizons of profession, as in research.*" (A10).

From these testimonies we interpret that these students know that they can, and perhaps have a preference in following the career of Biologist.

4.4 PRETENSIONS IN THE FIELD OF TEACHING

As for the undergraduate students who thought of continuing in teaching, 19 (86.4%) answered yes. This was justified by the vocation they said they had for the profession. But some have revealed that they aspire to teach at universities. Others say they want to be teachers of basic education, because they see this segment as a greater opportunity for employability in the municipality of Acaraú. Only 3 (13.6%) do not intend to teach.



5 FINAL CONSIDERATIONS

The present work allowed the comprehension of some aspects that involve the choice for the Degree course in Biological Sciences, general objective of this research. The analysis of the records collected through a questionnaire with the graduating students of the undergraduate course of the IFCE campus Acaraú, elucidate questions that corroborate with the authors Aranha and Souza (2013); Pacheco *et al.* (2017); Felicetti (2018); Ribeiro *et al.* (2018) regarding career choices. Such choices, according to the authors and the reports of the research participants, are made from influences arising from the social context, culture, economic situation, restrictions on educational opportunities and family members of the subjects.

In this research, the main reasons that led students to opt for the course are related to the influences of family members and the restrictions on the offer of courses in the municipality of Acaraú. The fact that there are only two degrees at IFCE *Campus Acaraú* and that it is a federal public institution, ends up limiting and determining the "choice" of students in the region. Some participants, to a lesser extent, also revealed to have chosen the course due to aptitude for the area of Biology and vocation for teaching, based on the example of family members or even for the school experience as a student.

About the experiences of the course and the look at the teaching profession, it was possible to perceive in the reports of the participants how much the practical experiences collaborate for the training process and transform the perception of the students about the teaching action. Some managed to discover themselves as teachers throughout the course.

In addition to the discovery and identification with the profession, these experiences helped the undergraduates to solve challenges of the educational context, articulating theoretical and practical knowledge. This engagement made it possible to transpose the vision that the undergraduate student had of "being a teacher", as students during school life, to the professional vision.

We conclude this work recognizing that the choices about the teaching profession involve subjective issues of the subject, but also political and social conditions. The results presented here contribute to the understanding of the phenomena perceived from an investigated reality and, therefore, do not exhaust the studies on the subject. We emphasize the importance of other complementary studies, such as teacher education and transformations in educational practice in contemporary society, which can contribute to the choices of the profession, collaborating for the future career planning of the biologist teacher.



REFERENCES

ARANHA, Antônia Vitória Soares; SOUZA, João Valdir Alves de. **As licenciaturas na atualidade.** Nova crise? Educar em Revista, Curitiba, Brasil, n. 50, p. 69-86, out./dez. 2013. Ed. UFPR. Disponível em: <https://www.redalyc.org/pdf/1550/155029382005.pdf>. Acesso em: 11 dez. 2019.

BRASIL. **Lei nº 10.172, de 09 de janeiro de 2001.** Aprova o Plano Nacional de Educação e dá outras providências. Brasília, 2001. Disponível em: http://www.planalto.gov.br/ccivil_03/leis/leis_2001/110172.htm. Acesso em: 30 de mai. 2021.

BRANDO, Fernanda da Rocha; CALDEIRA, Ana Maria de Andrade. **INVESTIGAÇÃO SOBRE A IDENTIDADE PROFISSIONAL EM ALUNOS DE LICENCIATURA EM CIÊNCIAS BIOLÓGICAS.** Ciência e Educação, v. 15, n. 1, p. 155-73, 2009. Disponível em: <https://www.scielo.br/j/ciedu/a/rbqWrxRJhtpPN8Myy9ZMWsz/?format=pdf&lang=pt>. Acesso em: 08 set. 2019.

CASTRO, Sinaida Maria Vasconcelos de; BRANDÃO, Zaia; NASCIMENTO, Ivany Pinto. **Biólogo ou professor de biologia: um estudo entre estudantes do curso de licenciatura em ciências biológicas.** I SEMINÁRIO INTERNACIONAL DE REPRESENTAÇÕES SOCIAIS, SUBJETIVIDADE E EDUCAÇÃO – SIRSSSE. PONTIFÍCIA UNIVERSIDADE CATÓLICA DO PARANÁ – CURITIBA, p. 10420-10431, 2011. Disponível em: https://educere.bruc.com.br/arquivo/pdf2011/6436_3814.pdf. Acesso em: 26 fev. 2020

CERQUEIRA, Sandra Valéria Santos de; CARDOSO, Livia de Rezende. **Biólogo-professor: relação entre expectativas profissionais e concepções em torno da docência para licenciandos em Ciências Biológicas.** CONTEXTO & EDUCAÇÃO, n. 84, p. 143-160, jul/dez. 2010. Disponível em: <https://revistas.unijui.edu.br/index.php/contextoeducacao/article/view/991>. Acesso em: 16 jan. 2020. FELICETTI, Vera Lucia, **Egressos das licenciaturas: o que move a escolha e o exercício da docência.** Educar em Revista, Curitiba, Brasil, v. 34, n. 67, p. 215-232, jan./fev. 2018. Disponível em: <https://revistas.ufpr.br/educar/article/view/50589>. Acesso em: 09 set. 2021.

GARCIA, Carlos Marcelo. A identidade docente: constantes e desafios. Tradução de Cristina Antunes, **Revista Brasileira de Pesquisa Sobre Formação Docente**, Belo Horizonte, v.1, n.1, p. 109-131, 2009. Disponível em: <http://hdl.handle.net/11441/29196>. Acesso em: 08 fev. 2020.

MYNAYO, Maria Cecília de Souza.; GUERRIERO, Iara Coelho Zito. **Reflexividade como étnos da pesquisa qualitativa.** Ciência & Saúde Coletiva, v.19, n. 4, p.1103-1112, 2014. Disponível em: <http://www.scielo.br/pdf/csc/v19n4/1413-8123-csc-19-04-01103.pdf>. Acesso em: 07 fev. 2020.

PACHECO, Márcia Maria Dias Reis, *et al.* **O adolescente e a escolha profissional: um processo de aprendizagem para os pais.** ECCOM, v. 8, n.15, p. 85-100. jan/jun. 2017. Disponível em: <http://unifatea.com.br/seer3/index.php/ECCOM/article/view/464/414>. Acesso em: 26 fev. 2020.

PIMENTA, Selma Garrido. **Formação de Professores: identidade e saberes da docência.** In: PIMENTA (org.) Saberes pedagógicos e atividade docente. São Paulo, Cortez, 1999, p. 15-34. (Pasta) Curso de didática – Profª Maria Isabel de Almeida (2ª sem/2002).

PIMENTA, Selma Garrido. Saberes Pedagógicos e atividade docente. 7 ed. 2009.

NÓVOA, António. **Firmar a posição como professor, afirmar a profissão docente.** Cadernos de Pesquisa, v. 47, n. 166, p. 1106-1133, out./dez. 2017. Disponível em: <https://dialnet.unirioja.es/descarga/articulo/6211666.pdf>. Acesso em: 08 fev. 2020.



RIBEIRO, Marinalva Lopes, *et al.* **Por quais motivações estudantes escolhem a carreira profissional?** Revista de Educação PUC-Campinas, v. 23, n. 2, p.155-173, 2018. Disponível em: <https://www.redalyc.org/jatsRepo/5720/572064154001/html/index.html>. Acesso em: 10 fev. 2021.

SILVA, José Edson, *et al.* **A escolha profissional para adolescentes:** panorama de estudos e pesquisas. Revista Magistro, (ISSN 2178-7956), v.1, n.13, p.170-185, 2016. Disponível em: <http://publicacoes.unigranrio.edu.br/index.php/magistro/article/view/3092>. Acesso em: 16 dez. 2019.

VASCONCELOS, Simão Dias; LIMA, Kênio Erithon Cavalcante. **O professor de biologia em formação:** reflexão com base no perfil sócio econômico e perspectivas de licenciandos de uma universidade pública. [Bauru]: Ciência e Educação, v. 16, n. 2, p. 323-340, 2010. Disponível em: <https://www.redalyc.org/pdf/2510/251019497004.pdf>. Acesso em: 09 jan. 2020.