

Pedagogy of Alternation in the initial training of rural educators: contributions and challenges

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ABSTRACT. The aim of this paper is to present a study and promote reflections on the contributions and challenges of Pedagogy of Alternation in a Rural Education Degree Course, with a focus on Natural Sciences. For the development of the research, data were collected through questionnaires and from the analysis of the Course's documents. The results showed contributions of Pedagogy of Alternation, which opens the possibility of graduates entering and continuing in university studies, and brings teachers and students closer to their communities. Challenges were also pointed out, such as the financial burden on undergraduates and the Course to cover housing expenses and cover transportation and food expenses; exhaustiveness and little use in University Time; the need for the graduates to get closer to the university environment and life during the Community Time; the importance of the adherence of the professors to teaching methodologies that are linked to the principles and foundations of Rural Education; the realization of integrative alternating; and the promotion of an inter and transdisciplinary Science teaching, aimed at the formation of rural educators.

Keywords: Pedagogy of Alternation, Rural Education Degree Course, University Time, Community Time, Teacher Training.

A Pedagogia da Alternância na formação inicial de educadores do campo: contribuições e desafios

RESUMO. O objetivo deste artigo é apresentar um estudo e promover reflexões sobre as contribuições e os desafios da Pedagogia da Alternância em um Curso de Licenciatura em Educação do Campo, com enfoque em Ciências da Natureza, da Universidade Federal do Piauí. Para o desenvolvimento da pesquisa, os dados foram coletados por meio de questionários aplicados a estudantes e a partir da análise de documentos do Curso. Os resultados mostraram que a Pedagogia da Alternância abre a possibilidade dos licenciandos ingressarem e continuarem nos estudos universitários; além de aproximar os professores e os estudantes e suas comunidades. Também foram apontados desafios, como a sobrecarga financeira para os licenciandos e para o Curso quanto a custear despesas com hospedagem e cobrir gastos com transporte e alimentação; a exaustividade e pouco aproveitamento no Tempo Universidade; a necessidade de aproximação dos licenciandos ao ambiente e vida universitários durante o Tempo Comunidade; a importância da adesão do corpo docente do Curso a metodologias de ensino que estejam vinculadas aos princípios e fundamentos da Educação do Campo; a realização da alternância integrativa; e a promoção de um ensino de Ciências inter e transdisciplinar, voltado para a formação de educadores do campo.

Palavras-chave: Pedagogia da Alternância, Licenciatura em Educação do Campo, Tempo Universidade, Tempo Comunidade, Formação Docente.

Pedagogía de la Alternancia en la formación inicial de educadores de campo: contribuciones y desafíos

RESUMEN. El objetivo de este trabajo es presentar un estudio y promover reflexiones sobre las contribuciones y los desafíos de la Pedagogía de la Alternancia en un Curso de Licenciatura en Educación del Campo enfocado en Ciencias Naturales. Para el desarrollo de la investigación, los datos se recopilaron a través de cuestionarios y del análisis de los documentos del Curso. Los resultados mostraron que la Pedagogía de la Alternancia abre la posibilidad de que los graduados ingresen y continúen sus estudios universitarios; acerca maestros y estudiantes a sus comunidades. También se señalaron desafíos, como la carga financiera de los estudiantes universitarios y el Curso para cubrir los gastos de vivienda y gastos de transporte y alimentación; exhaustividad y poco uso en el Tiempo Universidad; la necesidad de que los graduados se acerquen al entorno y la vida universitaria durante el Tiempo Comunidad; la importancia de la adhesión del profesorado del curso a las metodologías de enseñanza que están vinculadas a los principios y fundamentos de la educación rural; la realización de alternancia integrativa; y la promoción de una enseñanza de ciencias inter y transdisciplinaria, dirigida a la formación de educadores en el campo.

Palabras clave: Pedagogía de Alternancia, Licenciatura en Educación del Campo, Tiempo Universidad, Tiempo Comunidad, Formación del Profesorado.

Introduction

The objective of this work is to present a study and encourage reflections on the Pedagogy of Alternation (PA) in the Licenciature Course in Rural Education (LEdoC), with a focus on Natural Sciences. Therefrom, the guiding question was: what are the contributions and challenges of PA in the initial training of rural teachers?

Alternation is a polysemic vocable, from the Latin *alter*, meaning “other”, and was introduced in the 1930s as a pedagogic strategy in France (Brasil, 2006; Silva, 2012). According to a Portuguese language dictionary, the word “*alternância*” (alternation) refers to the repetition of two or more different things at the same order or at regular intervals (Michaelis, 2019). In this article, the PA is defined as an educational development process that combines moments of academic and family life (Silva, 2008). From the perspective of complexity, PA can be seen as a way to (re)connect theory and practice, scientific and quotidian knowledge, university and community, teachers and students, time and space (Pineau & Galvani, 2012). Thus, it can contribute to the full development of the human being who faces “realities or problems increasingly multidisciplinary, transversal, multidimensional,

transnational, global and planetary” (Morin, 2002a, p. 36).

According to the Report CNE/CEB nº 01/2006 (Brasil, 2006), the PA provides a more suitable methodology for rural schools, consequently also contributing to Higher Education, in the context of the LedoCs (Saul, Rodrigues & Auler, 2019).

A review of literature in articles of the last five years in journals in the field of education, about the topic of this research, brought up two works: Ferrari and Ferreira (2016); Saul, Rodrigues and Auler (2019).

Ferrari and Ferreira (2016) made bibliographical research in thesis and essays to delineate and debate on the PA’s national academic production between 2007 and 2013, continuing the work of Teixeira, Bernartt and Trindade (2008). Their research highlights a publication of a significant number of works about PA linked to the paradigm of Rural Education, and also the growing adoption of PA in the pedagogic contexts of Federal Institutes of Scientific and Technological Education and Federal Universities.

Saul, Rodrigues and Auler (2019) also contributed with a bibliographical study in thesis and essays about PA in the LedoCs. In this regard, they made a short history of both PA and the LedoCs. The research pointed out four works: two in the teacher training category (Hudler,

2015; Teles, 2015) and two in practices and conceptions (Silva, 2013; Ferreira, 2014). The researchers showed that the alternation can enable a reconnection between educational knowledge, time, and space. This would be possible through the development of a “relationship between community and school, the full development between individual and object, the non-dichotomy between theory and practice, the concern with broader educational processes, not only with teaching and learning etc.” (Saul, Rodrigues & Auler, 2019, p. 19).

In the studies of Ferrari and Ferreira (2016) and Saul, Rodrigues and Auler (2019), we can see that there weren't any works about PA in LEdoCs of the Northeast Region on the analyzed periods, what highlights the newness and importance of this investigation, developed at the State of Piauí, where four of those LEdoCs are active.

Furthermore, this research, by indicating the contributions and challenges of PA, based on the analysis of documents and surveys answered by students, at one LEdoC of the Federal University of Piauí, given its possibilities, can also contribute to the construction of reflections and debates that pave the way for a Higher Education geared towards a more complex thinking process; a dialogue; a building up

of a pertinent learning method; a reconnection between knowledges; an education of individuals that reconnect with one another, with their community and their reality (Moraes, 2012).

That said, this work is structured in the following way: first, it presents the theoretical setting of Rural Education, since it is upon this paradigm that PA emerged in the LEdoCs; secondly, it explains the methodological path of the research, and shows the results and discussions; and, finally, it ends with the final considerations.

Rural Education and training in complexity

Rural Education is an expression that emerged in the 1990s and refers to the counter-hegemonic educational paradigm which supports a project of education and development built alongside the rural population, for their interests, constituted by several rural collectives, such as farmers relatives and other rural workers, riverside dwellers, indigenous population, agrarian reform settlers, people affected by dams, among others (Molina & Jesus, 2004; Munarim, 2010; Caldart, 2012). In this aspect, it is concerned with an education “of” and “for” the countryside.

Despite having emerged from rural areas and fought for the appreciation of

that space and its culture, the Rural Education aims at a bigger project for the development of all society, urban and rural alike (Kolling, Nery & Molina, 1999). Thereby, it intends to overcome the dichotomy between countryside and metropolis (Brasil, 2004), reconnecting them, accepting their complementarity, in favor of comprehension that the context in which a human is placed is complex and that his reality entails a totality which is multidimensional, multireferential and global (Ardoino, 2002; Morin, 2002a).

Another basis for Rural Education, according to the *Rural Education Permanent Working Group*, is the creation of a connection for the invigoration of the countryside identity (Brasil, 2004). This involves recognizing the cultural diversity of human beings and for that is necessary that people, individuals, and collectives, question their position in the world and inquire themselves about their human condition, about who they are, where they are, where they come from, and where they are going (Morin, 2002a). Along these lines, these people need to comprehend their roots and in what aspects should they too uproot, so that they can conceive, free from reductionism and insular vision, the complex unity of the human being, which embraces diversity. In this respect, Morin states:

Those who see the diversity of cultures tend to minimize or conceal the human unity; those who see the human unity tend to consider as secondary the diversity of cultures. On the contrary, it is appropriate to conceive a unity that ensures and favors diversity, the diversity that incorporates into the unity. The double phenomenon of unity and cultural diversity is crucial. Culture maintains the human identity on what makes it unique. Cultures are apparently closed to safeguard their singular identity. But, in reality, they are also open: they assimilate not only the knowledge and techniques, but also ideas, customs, food, foreign individuals. The assimilations from a culture to another are rewarding. (Morin, 2002a, p. 57).

That way, according to Morin (2002a), future education, and here Rural Education can be included, must bear the human unity and diversity.

In addition to having established foundations, the Rural Education contains pedagogically guided principles such as, for instance, (i) the role of the school while responsible for the upbringing of individuals, committed to a project of human emancipation; (ii) the appreciation of different knowledges during the learning process; (iii) the space and time of the individuals' education; (iv) the learning place linked to the individuals' reality; (v) the education as a sustainable development strategy; and (vi) the autonomy and collaboration between countryside individuals and the national teaching

system (Brasil, 2004). It can be noticed that those principles also value the diversity and unity of the human being in its entirety.

Based on the values and principles of Rural Education, LEdoCs were created. After preliminary experiences, taken place before its official inauguration, the courses started to be offered in the mid-2000s (Molina & Sá, 2012). Of more than 40 existing courses, the majority has an emphasis in the field of Natural Sciences, which objective is to train qualified teachers to act multidisciplinary on this field of knowledge at Primary and Secondary rural schools (Molina, 2015).

The LEdoCs are regular courses that adopt the PA, allowing at least two teaching steps per academic term: University Time, when the undergraduate student, bound to the rural environment, has classes and activities at the university; and the Community Time, when the students carry out tasks led by the university teachers at the community where they live or work. According to Molina (2015) the adoption of PA in LEdoCs had the goals of (i) allowing the undergraduates students access to Higher Education without needing the alternative of leaving the country life; (ii) facilitating access and permanence in the course for teachers working at rural schools; and (iii)

promoting continuous integration and knowledge exchange between the university and social practices of the undergraduate students, giving it new meaning with their contradictions, tensions, dynamics and transformations. Despite this common goal, the organization of alternation in the courses, which holds relative autonomy for this, can vary. That way, PA can be juxtapositive, associative or integrative, according to Queiroz (2004).

The juxtapositive alternation is characterized by the succession of schedules and stages dedicated to work or study, without being necessary a previous connection between the two of them. In the associative occurs an association between the general and professional development, as if one simply complemented the other. In the integrative, or copulative, exists an effective compenetration of socioprofessional and educational ways of life in unity of developmental times. Thus, the integrative alternation is the one closer to the ideal of reconnection between knowledges in the LEdoCs' environment, corresponding to the logics that originate the PA (Cavalcante, 2007), such as the relational logic (between academy and community), the pedagogic logic (between theory and practice), the productive logic (between academy and work), and the

socio-environmental logic (between rural communities and the environment).

The PA in the LEdoCs engenders an idea around the initial training of teachers that tries to fight the challenges of complexity, understanding the word *complexus* as meaning “what is connected, what is twined” (Morin, 2002b, p. 564). Hence, PA aims to intertwine/reconnect individuals, collectives, knowledges, spaces and places in the same system.

Methodological Path

Context of research

The researchⁱ, about the contributions and challenges of PA, was developed in 2018 at a LEdoC of the Federal University of Piauí. The course, created in 2014, is organized into eight blocks. Its focus lies on Natural Sciences, thus contemplating in its curriculum components pertinent to physics, chemistry, and biology knowledge. Furthermore, as it is a teacher training course, it contains an array of pedagogic-didactic components, according to the licentiate course curriculum. Besides, being above all a Licentiate Course in “Rural Education”, it devises elements that deal with the history, organization and theoretical and methodological basis of Rural Education, in its relationship with rural social movements.

The alternation in the course is arranged in the following manner: during the months of January, part of February, July and part of August, around 45 days per semester, takes place in full time what is called University Time; and during part of February, March, April, May, part of August, September, October and November, Community Time is held.

In this setting, the course load of each subject is fractioned into those two teaching schedules (75% in University Time and 25% in Community Time). The curriculum components pertinent to the Mandatory Supervised Curricular Internships and Undergraduate Thesis are addressed during the Community Time.

During the Community Time there is the development of projects and activities associated with thematic axis defined semesterly at Course Meetings. Since 2017 the following axis are applied: (1) Culture, Memory, Identity, and Traditional Knowledge; and (2) Physics, Chemistry and Biology Teaching in rural schools. Between 2014 and 2017 other axis were adopted, besides those, such as agricultural and animal production and traditional knowledge about medicinal plants; and myths and beliefs related to Physics and Mathematics phenomena.

At Course Meetings, academic advisors for the Community Time and

Supervised Internship, and its correspondent groups, are appointed. Each one has the autonomy to plan, advise implementations, and evaluate projects, which can be supervised by one or more advisors collaboratively.

Data collection tools

The data was collected through surveys and course documentation.

The survey was applied to the Course students during University Time in 2018, when all subjects could be found. The decision of choosing these subjects was made due to the fact that they were the most affected by PA in the Course, and the perspective that they, as students, are the central element in the Course (Zabalza, 2004). The answers of 120 undergraduates were collected (78% of the total of students enrolled in the Course), identified in the answers as “Student” followed by a number (alluding to a code used to catalogue the answered surveys, with the number of the group's block followed by a number for each participant), so as to preserve their anonymity. The survey asked about gender, municipality, place of residence, age group, professional experience, previous academic education, and finally, about what was their vision on the alternation in the Course, in terms of its advantages and disadvantages.

The following are the analyzed Course's documents: The Pedagogic Project of the Course (PPC), reformulated in 2017; record of course loads; subjects and activities curriculum of the University and Community Time; academic calendars; teachers' resumes; didactic material elaborated by the faculty and activities developed in the Course since 2014, recorded in pictures and videos. These records allowed the researchers to confront the views expressed by the undergraduates with facts that have taken place and with data deriving of other sources.

Data Analysis

The first part of the analysis was statistical, only counting the students by gender, age group, municipality, place of residence, professional experience, and academic education, so as to outline the set of characteristics of the inquired subjects.

Afterward, the data was submitted to the thematic analysis, according to Braun and Clarke (2006). The analysis method consisted in familiarizing with the text of the surveys' answers and documents. After that, there was the identification and codification, in each answer of the surveys, of the word or expression that represented a core of meaning. Subsequently, the answers that were representative of these

cores of meaning were classified in thematic cores. From here on, the emerging thematic cores were related and verified with other data, derived from documents, electing the contributions and challenges of PA in the Course. That way, the thematic cores and the answers excerpts that illustrate them are the results of the compilation of all obtained data.

Results and Discussions

Characteristics of the undergraduates

The answers of the surveys brought to light some characteristics of the collective of undergraduate subjects participating in the survey, comprised by 97 women and 22 men, with one student preferring not to identify his gender. As for the age group, the average is 30 years old, with 81 undergraduates below this average and 38 with an age above the average. Beyond that, of the 120 inquired subjects, 31% reside in the municipality where the campus of the LEdoC is located and 69% live in neighboring municipalities, with 43% declaring to live in rural areas, 54% in urban areas, and the rest preferring not to divulge their place of residence. In the answers, it was found that 59% of the undergraduates declared not to work. However, between those who work, there are 24 undergraduates who already work as

teachers. It was also determined that 31% of the subjects already possess another degree.

The next topics will present contributions and challenges found by the researchers in the Course's Pedagogy of Alternation, acknowledging in the perspective of Complexity (Morin, 2000) that everything, because all things are intertwined, holds contradictions and uncertainties.

Pedagogy of Alternation and the permanence in Higher Education

Through the survey, it was noted by 35% of the answers that the undergraduates mentioned the advantage of the alternation being the possibility of conciliating the university studies with family responsibilities, with work, and with the distance between their residence and the campus. This reality confirms the reflections about the need to conceive present and future education as a complex process, that lays in a circle or network of relations that encompasses the individual and the society which he inhabits (Morin, 2002a). The following excerpts illustrate this:

I think it's good, because it's very good for those who are moms.
(Student 324)

The advantages are that we can study at the university or at home. (Student 34)

This alternation is very good, because this way we don't get much tired for living in the countryside [in the rural area] of the city. (Student 39)

This division of Community and University Time is a positive point, because it makes it easier for those who live far [resides in a municipality far from the main campus] or those who have a family in need of care, like small children. (Student 336)

The alternation system of the university is good for those who live far [resides in a municipality far from the main campus]. (Student 338)

With this alternation opens the doors for people from other cities who can't be full time students. (Student 417)

With this alternation it's possible to conciliate work and studies. (Student 614)

It's a system that offers an opportunity for those who are already working as teachers to study during their vacation, searching for a course to improve their professional qualification. (Student 720)

As the answers above show, the PA allows countryside undergraduates to enter and remain in Higher Education without reinforcing the alternative of removing them of their environment (Molina, 2015). This is important for 43% of the undergraduates, who declared to reside in rural areasⁱⁱ. Recognizing this environment and the importance of the individual

staying in it is a way of putting fort an education that aspires an understanding of others, overcoming ethnic and sociocentric thoughts (Morin, 2002a).

To the majority of the interviewees, the PA allows them to work and study at the LEdoC. In this regard, 41% of the undergraduates work, and, from those, 20% are teachers, endorsing one of the goals of adopting PA in LEdoCs, which is to facilitate the access and permanence of primary education teachers at rural schools in the Course. (Molina, 2015).

The major part (69%) of the undergraduates live outside the municipality where the campus is located. During University Time, they have the option of residing temporarily in the municipalityⁱⁱⁱ or traveling daily to the municipalities where they live. Some municipalities are close, while others are farther away, in a radius of up to 150 km (93 miles). In any event, it can be taxing to deal financially with the accommodation during this period, as well as cover costs with transportation, as the answers demonstrate.

However, thanks to the University Time the education is good and we learn a lot, but the difficulties are plenty, like transportation and lack of money. (Student 421)

Today those funds are being cut down and more and more academics are giving up on the course, since

they have no condition of getting by financially, especially because the majority of the academics are people from distant cities and rural communities. (Student 621)

Hence, in order to help the undergraduates with their expenses with accommodation and/or transportation, the Course offers a fund of Permanence Support, through an annual public notice. This fund is derived from the Higher Education Support Program in Rural Education (Procampo)^{iv}. Nevertheless, since 2016 these funds are no longer being passed, requiring the student body to pay part of their meals out of their own pockets. The current funds are derived from the management of funds that were received in 2014 and 2015. Such remaining funds are estimated to end in 2020. Therefore, it is possible that the standard of the Course's alternation may be compromised in the future, in case the Course does not receive any more funding, be it derived from a program or from the institution of which it is part.

Besides, another challenge is that many of the undergraduates are parents with small children. Conciliating those responsibilities with university studies is something eased by Community Time, in which they are able to develop activities in their communities, staying closer to their families. However, a lot of them need to

travel daily during University Time, which is something that gets tiring due to the classes in this period being on a full-time schedule.

Even the undergraduates who do not have children or live far, place the exhaustion in University Time as something challenging, exemplified by the following answers:

Well, the advantage is that with this course I'm able to work when I'm not at the university, and the disadvantage is that the duration of the classes is too short and the full-time schedule is bad, because the students can't learn as much as we wanted. (Student 32)

I think it's a bit cumbersome being only 45 days, because it's asked so much of the students in such a short time. (Student 422)

The time in which the course takes place is alright for me, because I work and I can only study during that time, but I admit that it's tiresome and rushed concerning the subjects that are too much to be passed on in a few days. (Student 51)

For me the advantage is that it's only 45 days for each term, but on the other hand the disadvantages are that during those 45 days the classes feel rushed and tiring. (Student 63)

The disadvantage is the short duration of the university time, what hinders the classes' content. (Student 77)

Those answers are reasonable since the undergraduates have classes from Monday to Friday full-time, in the morning and evening periods, for a duration of

around 45 days. For this reason, to 55% of the undergraduates, the University Time is tiresome. Many undergraduates feel that this manner of organizing the alternation have negative impacts on their learning, according to the following comments:

But it's too busy. It's only 45 days for so much content, this affects the studying a lot. (Student 317)

It's very tiring and most of the time we don't even learn the content. (Student 35)

We don't learn much, because the University Time is too short for each subject. (Student 716)

These remarks make sense, since most part of the course load of each subject is delivered in only two weeks, according to the example present in Table 1 that now follows.

Table 1 – Allocation of subjects and schedule in the University Time in a Licentiate Course of Rural Education of the Federal University of Piauí during a term.

Blocks	Classes	Period	02/07 until 13/07/2018	16/07 until 27/07/2018	30/07 until 10/08/2018
II	2017.2	Morning	Genetics	Basic Physics	Mathematics for Sciences Teaching
		Noon	Basic Chemistry	Regulation and Organization of Basic Education	Educational Psychology
V	2016.1	Morning	Ecology	Environmental Education	Supervised Internship I
		Noon	Plant Biology I	Animal Biology I	Human Anatomy and Physiology
VI	2015.2	Morning	Animal Biology II	Geosciences	Race and Ethnic Relations
		Noon	Management and Organization of Rural Education	Plant Biology II	Supervised Internship II
VII	2015.1	Morning	Curriculum Theory and Society	Zoology of Medical Interest	Supervised Internship III
		Noon	Geography Physics and Mathematics	Physics for Secondary Education	Thesis I
VIII	2014.2	Morning	Chemistry for Secondary Education	Rural Education and Social Movements	Supervised Internship IV
		Noon	Evolution	Environment and Development	Thesis II

Source: Coordination of LEdoC (2018).

As Table 1 illustrates, the undergraduates during University Time have only the evening period and the weekend to develop other activities, including academic out-of-class activities. In this tiring term, the students do not have

the necessary time to take in what they have learned (Zabalza, 2004). This observation by itself renders the manner in which the alternation system is organized fragile, as it should contribute to the

learning process, which is a condition for a full education.

(Re)connection Between Individuals

The PA brings teachers and students together. This harmonization can also be interpreted as reconnecting with the other, as an expansion of understanding the other, conditions for an education of the future (Morin, 2002a). During University Time, this harmonization is provided by intensive interaction with teachers on a daily basis, as Student 49 states.

University Time is essential because the students come into direct contact with the physical space of the institution and with the team that works for the progress of the course. (Student 49)

As reported by the above comment, the harmonization not only occurs between undergraduates and teachers, but also with others within the university environment. Throughout University Time, the undergraduates inhabit many different places of the campus, for instance the classrooms, the corridors, the courtyards, the Library, the University Restaurant etc. However, it is regrettable that this only occurs during the holiday season of other undergraduate courses, preventing interaction between undergraduates from different courses. It is also common for the undergraduates to have difficulties

conciliating between the curriculum and complementary scientific and cultural activities, since they are not on campus when many events of education, research and extension happen.

During Community Time, teachers visit the undergraduates' rural communities, where projects^v or supervised curricular internships are developed during each term. On these occasions, the teachers are welcomed at rural schools and the undergraduates' residences, getting close to their families and, consequently, of their reality with their struggles and contradictions. In the perspective of complex thinking, this harmonization provided by the PA is essential to teachers, all of which know that it is "necessary to integrate thinking, feeling, education, learning, and life, attributing the proper value to the knowledges derived from the encountered experiences, having in mind that each individual carries with himself the uniqueness of his experienced history" (Almeida & Moraes, 2012). During those visits, it is common that all of the knowledges, history, and experiences comes to light. This contribution is evidenced by the comment of Student 54.

The Community Time should exist in all other licentiate courses, because it's an opportunity to bring the students closer to the reality that

they'll face in their profession, at the same time that it brings the teachers closer to the students. (Student 54)

Knowing this reality also influences the teachers' methods, oftentimes contextualized according to resources, situations, and local traditions. On those occasions, not only scientific knowledge is valued, but also the quotidian knowledge, according to the definition given by Almeida and Moraes (2012, p. 32): "The horizon for an education for the complexity is supposed to surpass an education reduced to scientific culture content." This can be seen in the development of projects that also bring the students closer to their realities, encouraging them to discuss and appreciate it, which is reflected by the following answers:

I think it's fine, because we learn both ways, the theory and subjects at the university, and the practice at Community Time, by doing projects and working in groups. (Student 31)

The advantage is getting to know and explore the resources of our region and of the region of our peers. (Student 35)

Community Time is very important because it works recovering cultures and getting to know traditions of different communities. (Student 41)

University Time allows us to take in the theoretical part and build on the student-teacher relationship (necessary in every course), meanwhile, the Community Time is

where we practice, having to deal with transportation problems, used resources and difficulties in group activities. (Student 44)

It's very interesting because it gives us the opportunity of studying the theory while practicing in the Community Time. (Student 57)

The Community Time gives us the opportunity of putting certain knowledge into practice. (Student 613)

One of the biggest advantages of the alternation time is the opportunity to develop projects and other activities with our community. (Student 77)

It's an old methodology, which gives our course a great advantage, because it improves our knowledge with the development of projects that can contribute to society. (Student 713)

Therefore, through PA, the LEdoC gets closer to the mission of offering an education not limited to "convey mere knowledge, but a culture that allows an understanding of our condition and helps us to live, favoring a way of thinking that is more open and freer" (Morin, 2000, p.11). However, there is room for improvements according to the undergraduates. Although 12% admit the contribution of alternation to promote an exchange between theory and practice and 21% claimed that this method brings them closer to their reality and the scientific and quotidian knowledge, there are still some challenges left to overcome. One of them has to do with the setup of the faculty

members of LEdoC, comprised of a heterogeneous and multidisciplinary group, with teachers outside of the Rural Education field or without ties to country life or rural social movements, what impacts their education methodology, which is not always contextualized or planned under the guidelines and principles of Rural Education. In this regard, some undergraduates answered:

I see a detachment between the course's dynamic and the proposal I expect because the subjects are not contextualized to the reality of country life, and that can have a bad impact on the performance of future professionals of rural education. (Student 616)

There are teachers who come to the classroom and we see that they don't have any connection to country life. They develop the content in a fragmented manner, and don't contextualize it. We need better qualified teachers, who understand country life and above all contextualize the context according to reality, since the majority of undergraduates are from the country. (Student 618)

Thus, it is still imperative that the LEdoC's teachers are provided with means to help them undertake methodologically the mission of "reconnect the phenomena and discuss the real and the reason" within the boundaries of Rural Education (Almeida & Moraes, 2012, p. 31). Despite that, it is noticeable from records and materials of the Course that on the whole

there are actions being taken by the faculty members, even by teachers outside the field of Education and Rural Education^{vi}, towards the development of non-conventional methodologies of education, involving work with projects and researches, the realization of Science Fairs, field visits, contact with social movements leaders, development of workshops and production of material, among other things.

(Re)connection Between Education Times

Another challenge amid the alternation in the course is promoting a bigger interaction between University and Community Time, as the following excerpts exemplify:

And the Community Time should have projects elaborated and presented by the same city or countryside in which it was produced, exposing the scientific research to the community, showing the importance of this course and not hiding in anonymity, only to the peers. (Student 39)

It doesn't happen as it should in terms of discussion and development, the student doesn't interact with his reality. In my opinion, we visit the Community but there isn't an exchange of knowledge, we do our research but there's no giving back [to the community] and this is a disadvantage. (Student 721)

The comments above show that it is necessary, from the point of view of some undergraduates, a bigger interaction

between the moments of alternation, so as to encourage a constant flow of knowledge between the university and the reality of country life, mainly through activities that communicate what is produced. “The universal sign of complex thinking considers the reconnection between knowledges as unavoidable” (Carvalho, 2012). This can happen via the integrative alternation, carried out through projects and researches shared with the rural and university communities. In this sense, common projects should happen between the university and rural schools and also an exchange of knowledge between the undergraduates, the university and rural school teachers, taking the social movements also into consideration (Molina, 2015).

(Re)connection between subjects

Furthermore, there is the challenge of providing an education that surpasses a multidisciplinary character to an inter and transdisciplinary one. On this subject, the multidisciplinary concerns the grouping of a set of subjects displayed simultaneously without the need for a previous relationship between them (Japiassu, 1976).

However, according to Morin (2012, p. 35), “it is necessary to reconnect or

ecologize the subjects.” As Moraes (2012) pointed out:

In contrast to the traditional way of thinking that fragments and disjoins, that divides the field of knowledge into single subjects, entrenched and ranked, the Complex Thinking would be a reconnection (*reliigare*) method. It presents itself against the separation of knowledge’s objects, claiming the necessity of contextualizing it, of inserting it into the entirety in which it belongs. (p. 58)

In this perspective, the inter and transdisciplinarity appear as alternatives.

The interdisciplinarity involves the methodological and/or conceptual exchange between subjects for the interpretation and solution of problems and situations arising from reality.

The interdisciplinarity has a very precise meaning: it conveys an observation (the fragmentation of subjects) and a refusal (to abandon certain tradition and mentality) and also a remedy (the desired elaboration of a unifying myth) to this disintegration. Since its emergence, it has been fueled by a tension between an aspiration to a non-fragmented learning and the recognition of the openness, unfinishedness and incompleteness of each subject. A lot of people notice that the objects of a research reveal to be so complex that they can only be dealt with an interdisciplinary approach. The mere encounter or juxtaposition of subjects is no longer enough. It is imperative to break down the barriers between discussions and ways of expression so a more fruitful communication can be instituted. We need to replace the

paradigm that obliges us to learn through disjunction and reduction with a paradigm that allows us to learn through distinction and conjunction. (Japiassu, 2016, p. 4).

Likewise, the transdisciplinarity, like the multi and interdisciplinarity, still recognizes the existence and necessity of the subjects; but suggests means to surpass the subjects' barriers (Japiassu, 1976; Morin, 2012). According to Japiassu (2016), transdisciplinarity concerns what lies in between, across and beyond each subject. The interpretation of the following comments hints at this necessity:

We have a lot of information about the course and rural education, it could have more emphasis on Biology, Chemistry and Physics. (Student 36)

It needs more classes on theory and more specific subjects, like Physics and Chemistry, since they don't have much presence on the curriculum, most of them are pedagogical. (Student 75)

It should cover more specific subjects of Biology, Chemistry and Physics. (Student 410)

The aforementioned answers illustrate the multidisciplinary view of the students, although there is a shortage of more curricular components in the field of Natural Sciences, according to the analysis of the PPC of LEdoC. Nonetheless, the expressed necessity of subjects with the

curricular components of Biology, Physics, and Chemistry in the curriculum indicates that the Course and its individuals, including the undergraduates, interpret the curriculum in a conceptual, fragmented and non-thematic manner (Delizoicov, Angotti & Pernambuco, 2011). The goal of the inter and transdisciplinarity is not yet met with the multidisciplinary arrangement of the LEdoC (Molina, 2015). For that matter, it is necessary to organize the PPC of the Course in a way that encourages inter and transdisciplinary behaviors and practices knowing that "the subdivision and compartmentalization of learning prevent the apprehension of 'what is woven together'" (Morin, 2000, p. 45).

Additionally, it is important that the undergraduates discuss the purposes of their course; so that they can reflect and be aware that their education goes beyond their field of knowledge on Natural Sciences, although it should not be marginalized since they are studying to be teachers (Molina, 2015). Their education aims to prepare them for an Education of and for the countryside so that they can act as critical and transforming intellectuals inside an extensive educational project of development which encompasses both the rural and urban environment (Giroux, 1997; Caldart, 2011).

Final considerations

The study about PA in a LEdoC demonstrated that there are positive aspects already determined in this way of organizing the pedagogic time, and there are also challenges and uncertainties yet to be overcome.

On the one hand, the PA opens a possibility for the undergraduates to conciliate university studies with their family responsibilities, their work, and the onus of distance; and contributes to bringing teachers, students, and community together.

On the other hand, there are the challenges of financial burden on the undergraduates and the Course since they have to cover accommodation, transport, and food expenses; of exhaustion and underutilization of University Time organized in full-time classes and with a duration of less than two months; of the necessity of bringing students closer to the university environment and life during the Community Time; of the importance of the adhesion of the faculty members of the course to education methodologies linked to values and principles of Rural Education; of the implementation of integrative alternation, with continuous communication between university, schools and rural communities, for a learning exchange; and the development of

an inter and transdisciplinary Sciences education, directed to the training of rural teachers.

Given this situation, it is conclusive that the PA is a necessary condition for representatives of the rural population, especially those already working at rural schools, to join and, as undergraduates, remain in Higher Education.

Be that as it may, it is imperative to study alternatives that allow an organization of University Time and, therefore, of Community Time, in the studied LEdoC, so that these moments can be integrated, or rather, (re)connected on a deeper level; in such a way that the inter and transdisciplinary learning process can be really promoted, considering the required time for the students to absorb the subject's contents and rejecting disjunctions and reductions. Under those circumstances, the alternation must favor the development of contextualized educational practices, bringing theory and practice, scientific and quotidian knowledge, the undergraduates and their reality, together, encouraging them to debate and appreciate it. In this manner, the PA can contribute to reinforcing values and principles that anchor the Rural Education.

It is also noted that there is a necessity for the LEdoC's faculty to

further their education, with theoretical and methodological aspects focused on the research, reflection, and discussion of the Rural Education's history, values and principles. With this in mind, it is paramount to build spaces and moments of connection and dialogue between faculty members and rural social movements, in order to create projects that raise critical and transforming intellectuals.

Lastly, the more imperative necessity is to revitalize politics and programs that reinforce and provide material and pedagogical subsidies for the higher education of rural teachers. This education must be part of the schedule of rural people's representatives, who make up for more than 30 million of the national population. Amidst an economic, social and political context so permeated with changes and uncertainties, the empowerment of rural teachers, through the improvement of their education, will result in an empowerment of the population they serve, and of the nation as a whole, within a bigger and more complex project of development of all society.

Despite the limitation of the research and potentialities of PA in Higher Education, more studies in different contexts are encouraged, encompassing also the views of the faculty and family members of the undergraduates, in addition

to members of rural communities, rural schools, and social movements' representatives. It is still necessary to further investigate the conception of the LEdoCs' subjects about what constitutes what is rural and what are the limits between it and the urban side. Similarly, it is important that the researches also include the materials and objectives conditions where PA occurs in the LEdoCs, the employed study, and evaluation methodologies and the relationship between alternation and curricular structure under different curricular perspectives.

In short, despite the limitations and uncertainties, the PA can be seen as a thread, in the context of Higher Education, intertwining knowledge, time, space, and people, on behalf of a more complete and humane academic development and of an education for the future.

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ⁱAppropriate measures were taken to ensure the acquisition of the Ethics Committee's approval, through the process CAEE N° 66180317.8.0000.8057.

ⁱⁱThe distinction between rural and urban is unclear in Brazil (Sposito, 2013). The Undergraduates were not inquired about their conception of what constitutes rural. Thus, it is possible that those who declared residing in urban areas actually live in rural areas or the opposite.

ⁱⁱⁱIn the institution's campus, the benefit of university dormitories is not granted, nor is any kind of accommodation or temporary lodging for the LEdoC's students.

^{iv}Those funds have been used to keep PA in the Course, which generates expenses with transportation for faculty members (for visits to rural communities, especially during Community Time) and students, with didactic materials, with lodging (through grants of Permanence Support) and with food.

^vAs each teacher has the autonomy to plan, lead the execution and evaluate the projects, which can be led by one or more teachers collaboratively, it was not possible, given the scope of the research and the obtained corpus, to confirm if there always is an integration of knowledge between University and Community Time in each project and activity, although this is the abiding recommendation on the Pedagogic Project of the present Course. For the same reason, subsidies were not found to characterize in general the type of Pedagogy of Alternation developed over the Course, of whether it is integrative, associative, or juxtapositive.

^{vi}Through the analysis of the resume of 15 teachers who compose the faculty, it was discovered that only five of them have finished, or are attending, graduate school, with a major relating to Rural Education. However, the majority of the teachers produce articles, book chapters and publish papers in events of the area.

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ABNT

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