



“TEACHING LAB” AS AN EDUCATIONAL PROPOSAL IN THE INITIAL TRAINING OF GEOGRAPHY TEACHERS

Fátima Velez de Castro¹ⁱ,

Ana Maria Reis^{2*}

¹CEGOT - Centre of Studies in Geography and Spatial Planning,
Department of Geography and Tourism of the
Faculty of Arts and Humanities of the University of Coimbra,
Largo da Porta Férrea, 3004-530, Portugal

²Arronches School Group, Rua do Telheiro,
7340-001 Arronches, Portugal

Abstract:

Considering the requests from students and the identified needs in the initial training of teachers in general, and Geography in particular, during this year it has taken place the “Teaching Lab”, for undergraduates of the first year of the Masters in Geography Teaching in the 3rd cycle and Secondary Teaching of the Faculty of Arts and Humanities of the University of Coimbra (Portugal).

Keywords: teaching lab; geography teaching; classes observation; school context; teachers training

1. Introduction

Considering the requests from students and the identified needs in the initial training of teachers in general, and Geography in particular, it has taken place the “Teaching Lab”, for undergraduates students of the first year of the Masters in Geography Teaching in the 3rd cycle and Secondary Teaching of the Faculty of Arts and Humanities of the University of Coimbra (Portugal). The experience has taken place in the Arronches School Group (Alto Alentejo, Portugal) from January 29th until February 2nd 2018.

The main goal was to place these students in contact with the school context, through class observation, participation in curricular activities and exchanging experiences among peers (Geography teachers and other subjects). It was also intended for future teachers to observe and participate in classes of the 7th, 8th and 9th grade of multiple subjects (Geography, Math, Science, History and Visual Education), aiming to raise awareness to how the functioning of teaching models based on “learning through projects”.

ⁱ Correspondence: email velezcastro@fl.uc.pt

Another of this activity's goals was promoting the discussion of concrete realities of students with individual training plans attending the school group, and still school plans adapted to institutionalized youngsters (in the concrete case of the Home "P'ra Cachopos").

Apart from that, it has been possible the contact with the local community and with the reality of local/regional heritage, having been collected elements for future use, namely in terms of transdisciplinary field trip planning (Geography and History). Considering the goals intended for the activity, they derive from the key-question that underlies this investigation work, it can be stated as follows: can this teaching lab be considered a classroom observation model fitted for the initial training of Geography teachers? In fact, it is a practice that is beyond the simple observation of teaching practices within a classroom context, because the complexity of the proposed training model is more in line of the training immersion named by [1] Giglio and Lugli (2013:65), which they name as training experience that takes place "in loco", in an intense, systematic and in a defined period manner.

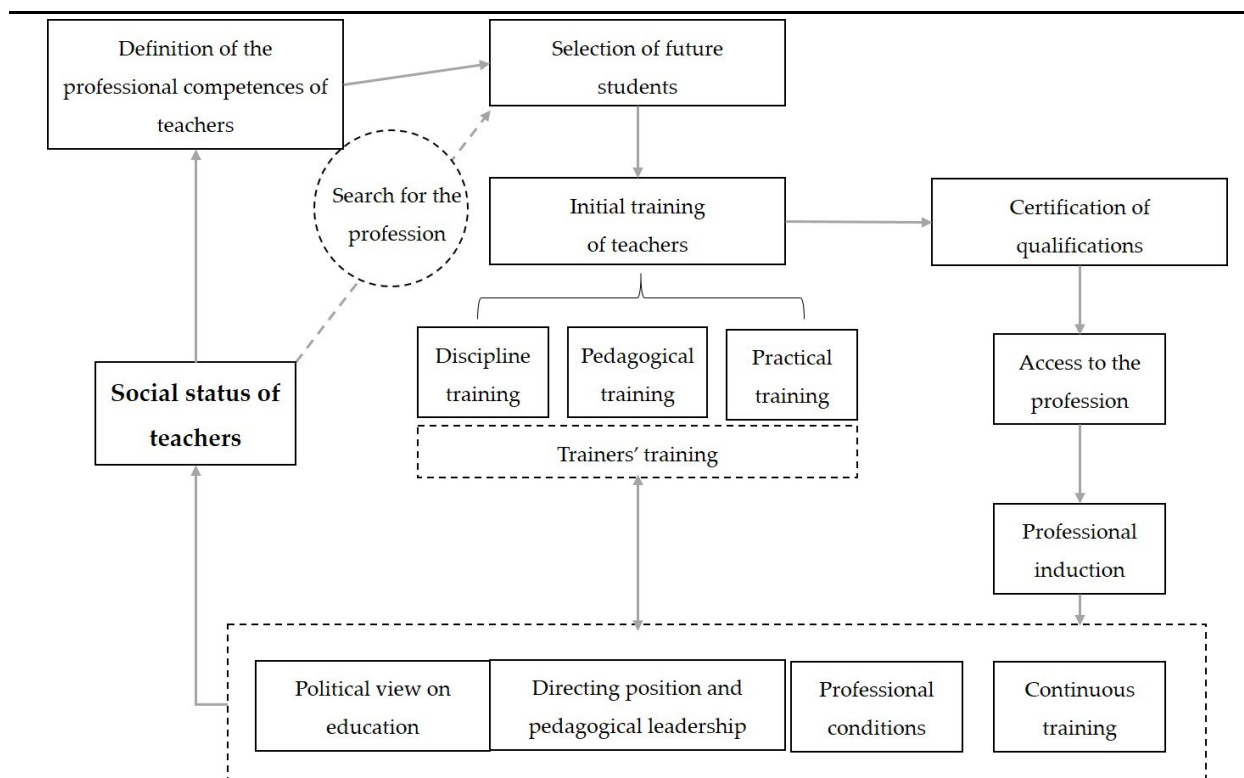
Two work hypotheses have been worked and tested: the first, which has considered the model to be valid and desirable in the initial training of Geography teachers, the second, which has considered this model uninteresting/without added value in the specific context of the initial training of Geography teachers.

Based on the definition of the issue, the study's theoretical table has been designed, aiming to confront several epistemological lines concerning the subject of supervision, in respect to the teaching observation experiences in the initial training of teachers.

2. Theoretical Framing

2.1. Reflections around the initial training of teachers

The initial training of teachers is a transversal and complex area, where more experienced professors prepare the future docent to teaching. As a norm, during this stage of the teaching-learning there is a participation of educational sciences, psychology, as well as concrete scientific areas where the teaching will take place. This is the beginning of a training continuum, in which the young teacher begins the pedagogical practice, not to cease the training environment that must guide its professional career. [2] Valle and Manso (2015: 60, 61) corroborate this idea, presenting teacher training in the perspective of "lifelong learning", i.e., it must not stop in periods where a certain qualification is achieved. In this sense, they list a set of elements constituting the full context of teacher training (initial and continuous), which we represent as a scheme in Picture 1.



Picture 1: Teacher training in the perspective of lifelong learning
 (Self-made (2018), from Valle and Manso (2015))

The authors consider that the initial training of teachers influences and is influenced by the own professional environment, being based on this background that the teacher training is made, that the responsible for the scientific, pedagogical and practical subject training will be. Besides, they also include the political dimension on education, as well as the social status of the job, as important factors towards the economic and scientific investment in this area. On this aspect, [3] Caena (2015: 24) mentions that there is a holistic trend concerning competence acquisition, from teachers, from which the research, educational practices and peer learning is part. In the case of this article in particular, we will focus on a model to be introduced in initial teacher training encompassing the use/discussion of contents learned in subject and pedagogical training: the Teaching Lab. It concerns the intensification of the supervision dimension and observation included in practical training, in the logic of anticipation of training situations and induction of professional practice, through immersion in the school's education context and surrounding social territory.

We mention the issue of supervision, considering it is a model based on an analytical base, in which future teachers will observe and reflect on the procedures of their peers, in the logic of classroom dynamics. It is not about "assessing", much less enunciate the practices from the academic formal point of view. It is about a practice in the line of the ideas by [4] Tavares, Brzezinski, Alarcão and Demo (2017: 110, 111, 115), who understand supervision in an ecological, systemic, interactive and constructive approach, without being reduced to control techniques and previously programmed

actions. The supervision's goals must be the follow-up of an activity, aiming to improve its quality. They claim that supervision uses processes as observation, reflection, dialogue, experimentation, and being that it must also be focused in three dimensions: activity-people-contexts.

[4] These authors (O. Cit. 2017: 106) understand supervision as "*(...) a process of observation, analysis and dialoguing observation, based on a profound, insightful and encompassing look which enables a rigorous, reliable, trustworthy, clear and stimulating reflection and vision*". That is why, in teacher training, they are in favour of the development of supervision activities based on dialoguing and participated cooperation practices [4] (Op. Cit. 2017: 105).

Also [5] Sá-Chaves, Araújo e Sá and Moreira (2006: 339), already defended this idea, therefore they quote [6] Alarcão (2001), concerning the supervision environment, which must comprehend conditions to develop learning experiences of reflection on and about pedagogical practice. That is, supervision must go from being a merely functionalist perspective (identifies the errors committed by the teachers) to a critical perspective, intervenient, emancipator, based on the conception of the teacher as an intellectual and as part of a responsible collective.

What the "Teaching Lab" intends to create is a peaceful environment with the future teachers, who almost always suffer with the anticipation of the ghost of the observed classes by the supervising teachers. [7] Lasagabaster and Sierra (2011: 450) draw attention to the fact that it is not usual to be observed in several performances, causing discomfort, tension and nervousness among peers. Besides, this lab also intends to show the use and need for the teacher to reflect systematically on their performances and let other be part of the process; in another perspective, cooperate with the colleagues in the observation of their practices. In this sense, [8] Mesquita and Machado (2017: 97) cite the perspective by [9] Formosinho (2014) to defend that, deep down, the future teacher has already made the observation of the performance of many teachers, while student, given it attended many classes. It is therefore understood that it has pre-established patterns and profiles, not only of what it has seen, empirically, but also because it has been an actor and experimenter of those several pedagogical models, implemented by the teachers throughout the years.

But this model also intends that the participation of future teachers occurs in an environment of "multidisciplinary peer observation", as it is defined by [10] Mouraz, Rodrigues, Guedes and Carvalho (2016: 38) who mention this scheme, assuming that "*(...) (all teachers and simultaneously observers and observed) [therefore] it reinforces the professors' proximity relationship, establishes an equity in the relations of power between them and emphasizes the collegial character of observation (...) associated to a form of competition*". Also [11] Fialho (2016: 24) defends this logic, by defending the supervision as a cooperative process of curricular renovation, so [12] Carneiro (2016: 57, 58) claims that the future teacher must be trained to observe in partnership.

[13] Figueroa and Hernández (2015: 5) list the advantages of shared observation among peers, stressing the fact that it is an opportunity for teachers early in their

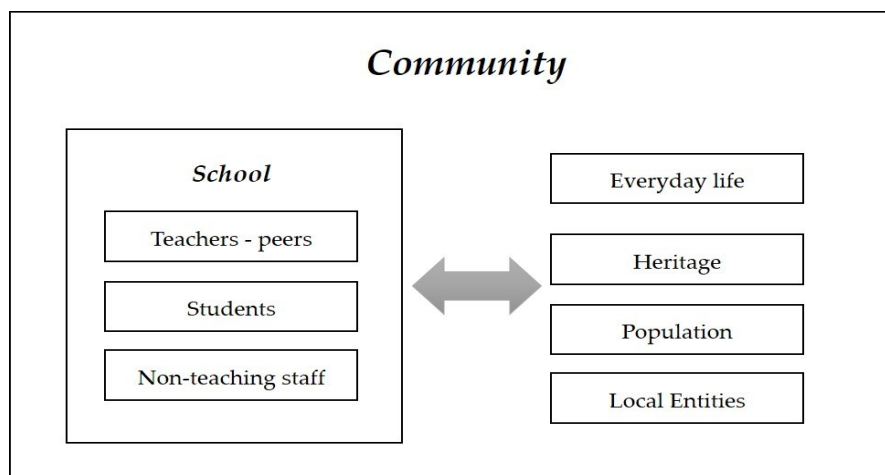
careers and experienced teachers to conclude that they share similar doubts, fears and challenges, although in different stages of the job.

Concerning Geography teachers' training in particular, and considering that the teaching lab experience has been created and developed in the scope of the Masters in Geography Teaching for the 3rd cycle and Secondary Teaching in the University of Coimbra, [14], Cachinho (2017: 13) suggests that there is an investment concerning cooperative learning of new teachers, i.e., it can be established a dialogue between "Geography teachers in training" the university institution (in the domain of scientific-pedagogical research) and the school institution (in the domain of teaching-learning practice). [15] Gaité (2011: 16) draws attention to the need of reflecting on the initial and continuous training of teachers, particularly Geography, because it is necessary to have a clear competence to the exercise of the job, reinforcing the idea that teaching the subject must be up to date with the phenomenological changes occurring at several analysis scales.

2.2. On the genesis and structure of the "Teaching Lab"

As already mentioned, the "Teaching Lab" has been thought based on the requests from the students of the 1st year of the Masters in Geography Teaching (3rd cycle and Secondary Teaching), from the Department of Geography and Tourism of the Faculty of arts and Humanities of the University of Coimbra. These have derived from the reflections conducted in the subject "Didactics of Geography", mostly after the presentation of the first classroom plans, where each future teacher had the opportunity to conduct a first expository experience among peers. This exposition has been supervised and analysed by the colleagues, but also by the student-actor, given there have been made recordings (video) of the presentation.

Considering this context of supervised self and hetero-assessment, the future teachers have thought to be important to benefit from a context of total submersion, where they could contact with the full context reality of a school environment, in its multiple dimensions, as displayed in Picture 2.



Picture 2: The immersive dimensions of the "Teaching Lab"
(Self-made (2018))

That is, the idea is that the experience could go beyond school, peers, students and non-teaching staff, but that it would be extended to the community itself, in the realm of the most personal and community day-to-day activities, considering the singularity of the natural, historic and cultural heritage, going through the population and acting of local entities, given that all these elements interfere in the specificity of the school environment and in the knowledge of the students about the surrounding territory.

Considering this train of thought, the conception of the "Teaching Lab" has been structured and stimulated in several stages:

A. 1st stage) It has been established an institutional protocol between the Faculty of Arts and Humanities of the University of Coimbra and the Arronches School Group, aiming to formalize the cooperation between both parties. Following there have been two meetings: the first with the Director of the Arronches School Group and the Coordinator of the Masters in Geography Teaching, where there have been outlined the goals for the "Teaching Lab", as well as where the activities to be developed during the stay of the future teachers in the municipality have been defined, including school activities (observation of classes, peer contact, etc.) and extra-learning (participation in school's daily activities), as well as others connected to the community itself (visit to several heritage interest points of the municipality).

The second meeting has been of preparatory character with the students of the Masters, who have shown interest in participating in the activity. It has been presented the structure of the "Teaching Lab" and a script, conducted by the Arronches School Group, so that they had prior knowledge of the programming of the activities to be developed.

Apart from that, it has been proposed writing a "journal" in which the future teachers could record the impressions resulting from the experience with the "Teaching Lab", which has been organized around four reflective axis: positive points from the experience, negative points from the experience; aspects to replicate in the teaching practice; aspects to avoid in the teaching practice.

B. 2nd stage) from an initial practical character, concerning the journey and settlement. The future teachers have taken the challenge and used public transportation (train) to travel a little more than 200 km (Coimbra-Arronches), which has result in a 4 hour trip. The idea was also to experience new territorialities and the inherent mobility forms, considering that the experienced territory is rural, inland, and a large part of the student live in the urban coastal areas, between Figueira da Foz and Viana do Castelo, in Portugal.

They had the opportunity of being settled in a former teacher's house, located over one of the former basic schools of the municipality. In the 1950's, 60's and 70's, it was inhabited by teachers of the municipality.

Still in this stage, there has been a meeting with the Director of the Arronches School Group, where there has been a presentation of the institution, as well as the activities' script has been exploited. There has also been a visit to several school spaces, as well as a brief reception in the town hall.

C. 3rd stage) consisted in activities of class observation and peer supervision, as follows:

- Class observation – method analysis and strategies used by peer-teachers within classroom context;
- Participation in classroom activities – support to work groups; analysis of evaluation test; participation in classes with documentary viewings;
- Experience of teaching practice – the Masters' students could step into action and teach a Geography lesson, where they have corrected a work chart;

D. 4th stage) consisted in sharing experiences between peers, where the Masters' students had the opportunity to attend:

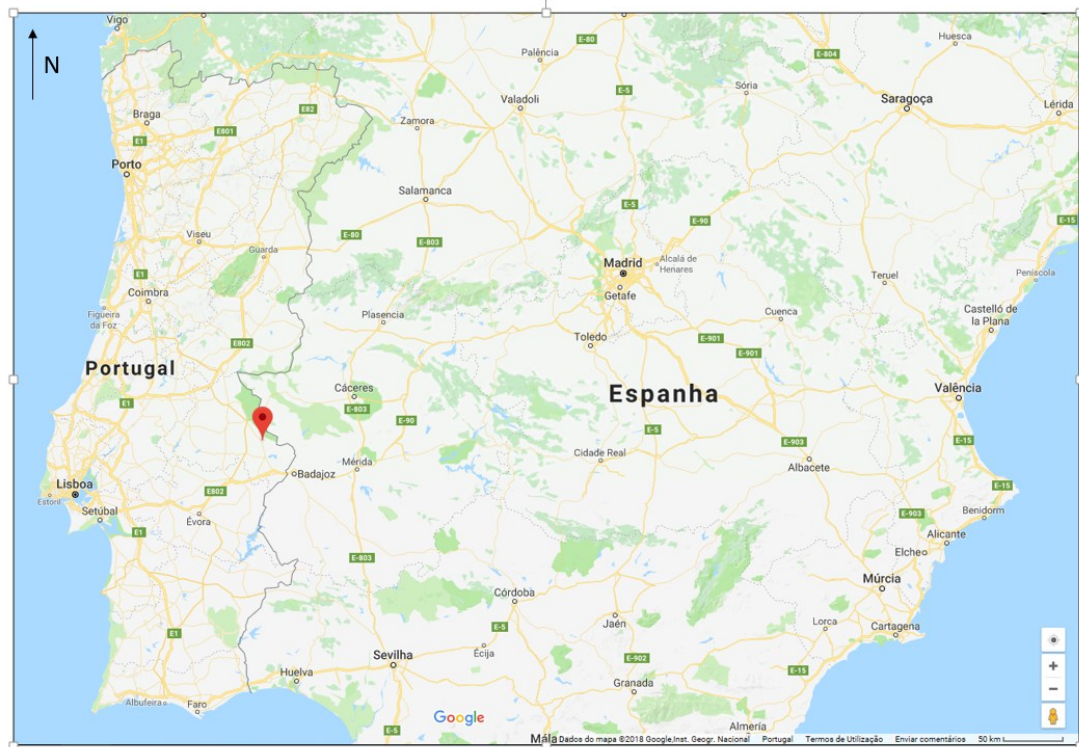
- Class Council Meeting – class of students with individualized school plans, who are institutionalized;
- Class Assembly Meeting – where an 8th grade class, with the class director, conducted the balance of the class' school progress, up to that moment, thus defining strategies for remediation and improvement in the case of students with several negative marks in various subjects;
- Methodology and planning meeting – with the Geography teacher, where it has been approached specific aspects linked to teaching the subject;
- Meeting with the Group Director - where there have been introduced an discussed issues regarding group management;

E. 5th stage) the future teachers had the opportunity of conducting several guided activities to interest points in the Arronches and Elvas municipalities (museums, pedestrian paths, prehistoric art, rural structures, etc.), to collect data on the local/regional heritage. Linked to the heritage dimension, they have also participated in an activity to commemorate the activities of the "Group – Nossa Senhora da Luz Day", translated into a treasure hunt with the school's students who have explored several local heritage sites.

3. Materials and Methods

3.1. Presentation of the territorial context in which the "Teaching Lab" has taken place

The Arronches School Group is situated in NUTIII Alto-Alentejo; NUT II Alentejo; NUT I Mainland Portugal, as it can be seen in Map 1. It is located around 22kms from Portalegre (Portugal) and 44kms from Badajoz (Spain). According to the database [16] Pordata (2018), in 2016 it had 2970 inhabitants living in three parishes (Assunção, Esperança and Mosteiros)



Map 1: Location of Arronches (Portugal)
(Source: Google Maps (2018))

It is a municipality with an aged population (in 2016, 32% of its inhabitants were more than 65 years old), with low education levels (in 2011, only 14% of the population had the complete secondary education and 7% had higher education), where the weight of the primary and secondary sectors is very reduced (73% works in the tertiary sector, in services of the municipality, other state services or social solidarity public institutions). Besides, the family gross income is low, as well as the access indexes to cultural resources consumption.

Concerning the particularity of the demographic issue, it has been verified a decrease in school population, as a consequence of the decrease in the birth rate (in 2016, 7,4‰). The following table concerns the student constitution of the Group, in the 2017/2018 school year, in which the "Teaching Lab" experience has taken place.

As it can be seen in Table 1, the student universe of this teaching establishment is 265 students, with 47 teachers (25 as school staff; 9 as area staff; 13 as hired).

Teaching Levels		Nº of students
Preschool	3 years old	8
	4 years old	14
	5 years old	14
Primary Education	1st grade	17
	2nd grade	21
	3rd grade	25
	4th grade	17
Basic Education	5th grade	21
	6th grade	27
Third Cycle	7th grade	24
	8th grade	19
	9th grade	21
Adapted Teaching		21
Other Situations		16
<i>Total</i>		265

Table 1: Teacher and student universe in the Arronches School Group in the 2017/2018 school year (Self-made (2018))

Apart from the subjects of the school curriculum, the school offers extra-curricular activities in the kindergarten (physical and sports activity, music, multimedia-information technologies and communication and theater) and in the 1st cycle – curricular enrichment activities (skating, theater, heritage, multimedia information technologies and communication/introduction to programming). In the 2nd and 3rd cycles it is being developed a set of projects of national scope such as LER+, Portuguese Movie Plan, School Sport, as well as others of local scope (music, chess, school radio, etc.).

Concerning management, apart from the Executive Direction, comprehending 4 teachers, there is a general council, with 14 elements (with teacher, auxiliary staff, parents, municipality and local partners) and a group of 21 employees and partners (municipality, local associations, local companies, church, authorities, higher education establishments and teacher training, etc) participating in the Group's administration.

Thus, based on the school context, it has been defined the work method originating the "Teaching Lab".

3.2 Methodology

Although it had already been sketched when the presentation of the several stages in which the "Teaching Lab" has taken place, we will conduct a brief summary of how the method context has been, as well as the research and analysis strategy resulting in the collection of data for discussion and presentation of results, ensuing in two methodology levels, as follows:

1st Methodological level – Collection of data concerning the observations made by the future teachers. Concerning the methodological context of "Teaching Laboratory", ten Master students had the opportunity of observing and participating in 7th, 8th and 9th grade classes from several subjects (Geography, Math, Science, History and Visual Education), as well as to contact with concrete reality of students with individual training plans attending the school, and even individual adapted curricular plans to institutionalized youngsters in the Residence "P'ra cachopos". This participation activity has resulted in drafting an "observation diary", where the future professionals have recorded the impressions resulting from the first contact with school, in a professor's perspective. The focus of analysis has centred in the classroom context, peer context and community context.

2nd Methodological level – Treatment of the data collected in the first methodology level and presentation of the results. In logic of activity supervision, it has been made a "direct observation" by the future teachers, having been recorded (freely) impressions concerning the lab context, as well as reactions and comments made by the future teachers. In the end of the activity there has been an "indirect observation" through reading of journals (authorized by the participants), and respective content analysis.

After conducting a preliminary report with the first balance of the activity, there has been a "group dynamics", resulting both from a peer meeting (university professors from Teacher Training at the University of Coimbra) and other meeting with all the Geography Masters students of the University of Coimbra, where it have been recorded (freely) several impressions and suggestions arising from both meetings.

4. Results and Discussion

The impression record generated from the experience, through the "journal", allowed the 5 training teachers who have participated in the "Teaching Lab", to exteriorize a set of observations that drawn their attention. Remembering the fact that the writing had been suggested based on 4 axis (positive points, negative points, aspects to replicate in teaching activity and aspects to avoid in teaching activity). However, when the generated documents were read, it has been realized that they have not used the guideline, having recorded freely the impressions. Thus, there have been 6 stressed groups namely:

1) School environment: dynamics of the work between teachers-teachers and teachers-students:

- Great welcome by the whole school community (school and local);
- Remarkable school organization and management;
- Good connection/bond between teachers and students, proximity relation, school with family environment (good relation between teachers-students-staff);
- Cooperative peer work, establishing work goals and objectives;
- Cooperation between delegate and vice-delegate (students);
- Proximity between teachers and students and between staff and students;
- Existence of the figure of the "guardian".

2) Reflection by the students about their own behaviour and school performance:

- Balance made by the class regarding behaviour and performance (school assembly);
- Incentive to dialogue and expression of feelings (from anger, frustration, to doubt, joy, etc.);
- Stimulus to assistance and benefit of cooperative work between colleagues;
- Promotion of autonomy.

3) Learning-teaching strategies:

- Different teaching-learning strategies for students in the same class;
- Reassuring work forms, through the use of music (individual or ambient) while making work charts;
- Use of new technologies and image (documentaries, film);
- Use of examples from practical cases at several scales;
- Availability of materials by the teacher to the student;
- Indication of tasks in a more clear and precise manner;
- Test matrix available (by email) before the test and displayed in the classroom;
- Promotion of oral involvement and participation.

4) Teacher acting:

- Bodily posture of the "dominant" teacher, circulating through the classroom watching all students;
- Importance of voice placement;
- Positive reinforcement of the students.

5) Organization of school spaces:

- Organization of the classroom in test situation, layout of the classroom, in the same class there are several layouts;
- There are no sound signals (bells) to mark the entrance and exit times of the classes;

6) School's materials issues:

- Great material conditions of the school, adapted to the students;
- Good conditions of the infrastructures;
- Good food.

In the "group dynamics", the future teachers have explained that, within the logic of the "Teaching Lab", they would rather have more freedom of observation, without having to fill more or less rigid tables. On the other hand, give the Geography Didactics teacher was always present in all the activities of the Lab, it also provided observation guidelines, drawing attention to the scientific-pedagogical aspects to keep in mind, thus making connections between the theoretical contents learnt in the initial training against the practical reality.

Thus, the participating training teachers could identify important particularities in a learning-teaching context, observing and participating in what strategies and posture used by the teachers is concerned, as well as acting forms among peers. The lab has been understood as a practical case study, in which it was possible to collect pedagogical, scientific, management and heritage data. Concerning the latter point, they could perform a photographic record, contact making and discussion around the kind of activities that the teachers of this group make with the students, considering the local heritage.

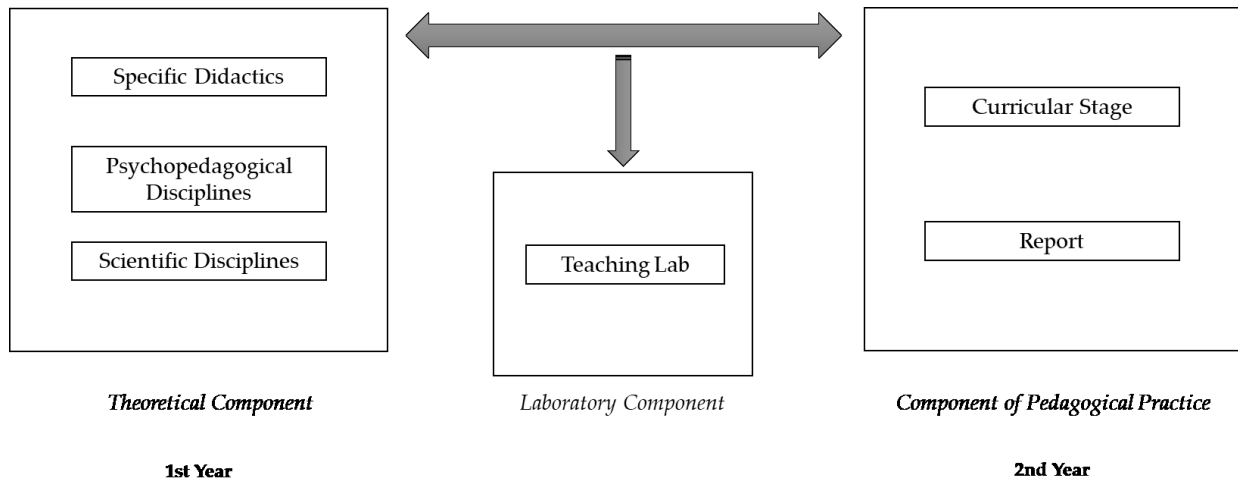
On the other hand, in the context of "group dynamics" it was requested to emphasize some concerns, therefore, the stressed aspects have been the following:

- Almost "quitting" the improvement of the behaviour/learning of students with individual training plans, namely the ones institutionalized;
- Very few students (one class per teaching level), leading to no competition between classes
- Sometimes the more cooperative work may not work with more restless students, more easily distracted;
- The use of internet may not be accessible to all.

On the performance itself, when teaching part of a class, it has been the first time that all participants have had the opportunity of being, as teachers, in front of a class. They mentioned that to be very rewarding, although it had generated some tension, but that has removed some anxiety as to the following school year, where they will have to teach more systematically. As short as the experience was, the truth is that it has enabled them to experiment with the teaching practice.

Besides, the participants have stressed the importance of the contact with the local community. Although it had been conducted in a context of full informality, they thought that being aware to the need of understanding the school context as an integrated element in a wider territory, including different sets of behavioural and understanding values than those they are used to. There has been an unusual situation that must be mentioned: in this region of the country, bullfighting culture is part of the traditions and symbols for the local population. Although, in a first approach, the future teachers have shown reluctance in agreeing with any pro-bullfight demonstration, the truth is that a guided tour to the concrete place of the event (bull ring) and the explanation around the phenomenon, made them rethink how they could interact with the students. That is, more than making judgement around a fact, they were able to systematize the several points of view, without having to change their own

beliefs, helping them to put into perspective forms of listening to the students and supporting the youngsters in seeking and courteously equating different points of view. Concerning the "group dynamics among peers", there have been presented and discussed the results with several university teachers from the Masters in Teaching of the faculty of Arts and Humanities of the University of Coimbra, being considered the introduction the lab component in the initial training of teachers in the institution, in the logic of what was listed in Picture 3.



Picture 3: Initial training proposal for Geography teachers
 (Self-made (2018))

Although it has been an exploratory experience, conducted for the first time in the institution, it was thought to replicate the model to other training areas (history, Portuguese, foreign languages, etc.) in a more systematized version, although adapted to each course. That does not hinder the possibility of (desirable) situations of interdisciplinarity. If nothing else, because the multidisciplinary observation and observers can contribute to opening the future, to work in the line of flexible curricula and project based learning.

The "Teaching Lab" must be part of the theoretical component of the Masters courses in Teaching, in the first year of training, so that the theoretical component is not dominant, but also a work practice component, that is not confined to the mere observation of classes. It was witnessed that it would be important for it to take place before the pedagogical practice component, in order to initiate a first contact with the school context that can precede the training stage so that the future teacher move forward to this stage in its training with more confidence and tranquility.

5. Conclusions

In conclusion, we recover the key-question that originated this study: can the "Teaching Lab" be considered a proper observation model for classes in the initial training of Geography teachers? The theoretical framing that was used as base of the investigation

consider that the supervision and observation of teaching practices, in a cooperative, reflective, dialoguing and multidisciplinary manner will allow the improvement in school performance, with these practices being considered in the initial training of teachers. Considering this epistemological line, it was considered valid the hypothesis that predicted that the model for the "Teaching Lab" is valid and desirable in the initial training of teachers, not only in Geography but of all areas in general.

The future teachers who have participated in this activity have made a very positive balance of the activity, resulting from the possibility of contact with a school's reality, with the students, faculty and staff in their routine. Also, the colleagues (university professor) consider this to be a model to replicate, even because it narrows the bond between academy and school, in the sense that it is also sharing work strategies, doubts and projects which will enrich both the initial training and continuous training of teachers in the Portuguese context.

Acknowledgment

This research was supported by CEGOT (Centre for Studies in Geography and Spatial Planning).



Cofinanciado por:



POCI-01-0145-FEDER-006891

References

1. Giglio, C.; e Lugli, R. Diálogos pertinentes na formação inicial e continuada de professores e gestores escolares. A conceção do programa de residência pedagógica na UNIFESP. In *Cadernos de Educação*, 2013, 46 pp.62-82 (2013). Available on line: <https://periodicos.ufpel.edu.br/ojs2/index.php/caduc/article/view/4173> (accessed on 29/05/2018).
2. Valle, J.; Manso, J., A formação para a docência: uma constante interna (e externa) do desenvolvimento profissional docente. In: *Formação de professores: tendências e desafios*, 1st ed., Mouzinho, A.; Caena, F.; Valle, J.M., FFMS: Lisbon, Portugal, 2015, p.57-64.
3. Caena, F. Quadros de competências de professores no contexto europeu: política enquanto discurso e política enquanto prática. In: *Formação de professores: tendências e desafios*, 1st ed., Mouzinho, A.; Caena, F.; Valle, J.M., FFMS: Lisbon, Portugal, 2015, p.11-56.
4. Tavares, J.; Brzezinski, I.; Alarcão, I., Demo, P. *Ontem e amanhã na universidade em discurso direto*, 1st ed., Editora UFG: Goiás, Brazil, 2017, 132 p.
5. Sá-Chaves, I.; Araújo e Sá, M.H.; Moreira, A. *Isabel Alarcão, percursos e pensamento*, 1st ed., University of Aveiro: Aveiro, Portugal, 2006, 600 p.

6. Alarcão, I. Do olhar supervisiivo ao olhar sobre a supervisão. In *Supervisão pedagógica: princípios e práticas*, 1st ed., Rangel, M.(Org.), Papyrus Editora: Campinas, Brazil, 2001, pp.11-55.
7. Lasagabaster, D.; Sierra, M. Classroom observation: desirable conditions established by teachers. In *European Journal of Teacher Education*, November 2011, vol.3, 4, pp.449-463.
8. Mesquita, E.; Machado, J. Formação inicial de professores em Portugal: evolução e desafios. In: *Educação superior e formação de professores: questões atuais*, 1st ed., Shigunov Neto, A.; Fortunato, I. (Orgs), Edições Hipótese, S.Paulo, Brazil, 2017, pp.97-115.
9. Formosinho, J. Da aprendizagem pela transmissão do ofício de aluno ao desenvolvimento de pedagogias participativas. In *Luzes e sombras da formação contínua: entre a conformação e a transformação*, Formosinho, J.; Machado, J.; Mesquita, E., Edições Pedagogo: Mangualde, Portugal, 2014, pp.13-25.
10. Mouraz, A.; Rodrigues, S.; Guedes, M.M.; Carvalho, F. Contributos da observação de pares multidisciplinar nas práticas reflexivas de professores dos ensinos básico e secundário. In *Revista Portuguesa de Investigação Educacional*, 2016, 16, pp.33-54.
11. Fialho, I. Supervisão da prática letiva : uma estratégia colaborativa de apoio ao desenvolvimento curricular. In *Revista de Estudos Curriculares*, 2016, Year 7th, 2, pp.18-37.
12. Carneiro, A. Sobre as práticas de observação docente – o uso de instrumentos de registo para a observação em parceria da sala de aula. In *Revista Portuguesa de Investigação Educacional*, 2016, 16, pp.55-79.
13. Figueroa, C.;Hernández, E. La observación entre pares: aprendiendo de un reflejo. In *Revista Iberoamericana para la Investigación y el Desarrollo Educativo*, 2015, vol.6, 11, pp.1-21.
14. Cachinho, H. Criar asas : dos desafios da formação de professores de geografia na pós-modernidade. *Revista Educação Geográfica | UP*, 2017, 1, p.91-19. Available on line: <http://ojs.letras.up.pt/index.php/GETUP/article/view/2158> (accessed on 22/05/2018)
15. Gaité, M.J. Educación geográfica y formación del profesorado. Desafíos y perspectivas en el nuevo espacio europeo de educación superior. In *Boletín de la Asociación de Geógrafos Españoles*, 2011, 57, pp. 313-342.
16. Pordata (2018), Summary table on the municipality of Arronches. Available on line: [https://www.pordata.pt/Municipios/Quadro+Resumo/Arronches+\(Município\)-230819](https://www.pordata.pt/Municipios/Quadro+Resumo/Arronches+(Município)-230819) (accessed on 22/05/2018)

Fátima Velez de Castro, Ana Maria Reis
"TEACHING LAB" AS AN EDUCATIONAL PROPOSAL
IN THE INITIAL TRAINING OF GEOGRAPHY TEACHERS

Creative Commons licensing terms

Author(s) will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Social Sciences Studies shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflicts of interest, copyright violations and inappropriate or inaccurate use of any kind content related or integrated into the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).