



# VOCATIONAL EDUCATION AND LEARNING OF TEACHING: A PIBID'S SCHOOL GARDEN EXPERIENCE

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## Abstract

This article reports a joint experiment with students and professors in the teaching degree program and technical program, both from the area of Agricultural Sciences, in building and maintaining school gardens as a form of learning the technical and introductory knowledge necessary for training teachers to work in vocational education. The objective of this article is to describe and organize the challenges in working with teacher training for vocational education with students from the teaching degree program in the Institutional Scholarship Program for Teacher Initiation (Pibid, acronym in Portuguese).

**Keywords:** Vocational education. Technical teaching. Teaching degree. Teacher training.

## 1. Introduction

Teacher's graduation to work in vocational education is a discussion that is trending to become more and more eminent in regards to the necessary assets needed for this function, due to the increasing integration between high school and technical education.

The consensus among the professional educationist is that teachers must graduate as practical-reflective professionals, reaching for investigation of their own practice as means to decide how to act, with intellectual foundations to plan, decide and propose new forms of teaching that will compose its pedagogical practice and relationship to students inside and outside of a classroom. The graduation of teachers prioritizes knowledge, dexterity, and attitude towards reflective and investigation practice, glancing over improvement and coordination and to a project allied to the social function of a school.

Reflection over practice, in action and about action, is vital to resize professional learning. In the teaching profession, to rethink the pedagogical practice by underlying it with theory and reasoning is a path in teaching education defended by Zeichner (1993) among other authors. Learning how to teach under actual teaching conditions can make more frequent the use of practical activities in schools, learning that involves reflection throughout the wholly performed practice, before, during, and after the practice. Teachers, by not pondering about their ways of teaching, naturally accept the day-by-day reality of schools without taking into consideration the experience as one among other possible realities, following Zeichner (1993, p. 18), with a bias to accept automatically the ordinarily dominant point of view in a given situation.

Imbernón (1994) advocates the idea that the teacher bears a specific pedagogical knowledge, a moral and ethical commitment, but its efforts rely on co-accountability of other social agents in the task of educating. In this sense, even though the teacher's task in educating vocational education students depends on this co-accountability, it suits the teacher to go after this specific pedagogical knowledge to better aid the pupil in its graduation process.

For Nóvoa (1992, p. 25), to accurately graduate teachers is to provide the "means of autonomous thinking", in which the teaching graduation occurs through construction and not information accumulation, demanding a personal investment aimed at the building of identity.

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**Vocational courses, from private or public professional education institutions, find it difficult to hire professionals with a teacher licensure**

Therefore, the graduation of new teachers needs to base itself in the pondering of performed practices in professional graduation. The search for new methodologies, new means of opening up room for critical and participating thought, and the discussion of techniques and specific procedures fit the choice of the person better adjusted to the scenario. It involves respecting ethics, environment and targeting product quality and the overall wellbeing of the professional.

In which measure are these topics of teachers' graduation present in the field of vocational education? The endeavor of thinking and organizing teachers' graduation for this modality is a question with no answers so far, for it seems to be little argument about it – especially when topics such as the need of a vocational course teacher to have a graduation degree brought up. Vocational courses, from private or public professional education institutions, find it difficult to hire professionals with a teacher licensure. Mainly for sectors considered "applied", in which the proximity to practical work requires graduation specificity, as it occurs with disciplines focused on vegetable cultivation, vivarium cultivation, zootechnical practices, among other agricultural production sectors – which is the core of the argument in this paper.

A recent research about teachers' graduation for vocational education in the federal professional and technological educational system throughout all Brazilian regions

(CARVALHO, SOUZA, 2014) has indicated that a considerable amount of teachers do not have pedagogical instruction from a graduation degree because less than half of them (43%) had a degree at all. The majority (49%) had Bachelors' degree, and the remaining teachers had technological degrees.

A good part of teachers that work with vocational education teach without recognizing themselves as such, mostly identifying themselves through their area of expertise (e.g. engineers, biologists, chemists among others), according to Araújo (2008). In his research, Araújo noticed resistance to pedagogical knowledge as an indicator of teaching practice for those professionals on top of an educative perspective aligned to the formation of professionals that serve the market's interests (ARAÚJO, 2008), setting up a non-critical vision of productive process and of the teaching work itself.

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**The analysis of educational experience in this article indicates how it was necessary to think orientation for the teachers who guide undergraduate that will work as teachers for vocational education**

Gariglio and Burnier (2012) understand that there is a silence around teachers' formation for vocational education in educational research. To the authors, an epistemological difficulty in the area of teachers' formation is the need of pedagogical treatment of pedagogical knowledge in vocational education (GARIGLIO; BURNIER, 2012).

The issue of teachers' formation for vocational education has been the attention focus on Brazilian educational politics recently, regarding the possibility that people with a notable understanding of a given subject were able to teach. That kind of thought means to exercise the work of a teacher without the necessary foundation to do so, inferring that in some instances, or for some people, it is unnecessary. The results of the work

approached in this paper subsidize an opposite argument: that it is necessary specific formation and the building of a professional identity for the sector.

The initiatives on graduating teachers to work at schools dedicated to preparing others for work need to prize more efficiently if the intention is to have qualified teachers for work and committed to the schooling of young (MASSABNI, 2016).

The analysis of educational experience in this article indicates how it was necessary to think orientation for the teachers who guide undergraduate that will work as teachers for vocational education, supported on the commitment with seamless, reflective and technically capacitated formation of those undergraduates. This perspective puts formation on a different stand compared to the one who praises an educational qualification that accounts for action rules and existing techniques in a specific field, such as agriculture.

The goal of this paper is to describe and systematize the challenges in the work of teachers' qualification for vocational education. The undergraduate students enrolled in the Institutional Scholarship Program for Beginning Teachers (Pibid), an initiative by the Coordination for the Improvement of Higher Education Personnel (Capes) participated with the objective to recognize the specificities of this qualification.

The segment was the construction of gardens in a vocational school, option valued from the proposal of the Pibid on working the teaching qualification starting from practical activities from a subproject named "Practical and Computer-centered activities as support to teachers' training on Biological and Agricultural Sciences" (MASSABNI; PIPITONE, 2013). In the technology axis, different proposals were developed, and since this research has centered itself, as subproject coordination, on the practical activities axis, it will be in discussion how to make them viable on the professional education school linked to Pibid.

Pibid aims to value and improve teachers' qualification for basic education, inserting the undergraduate student straight into schools through scholarships to perform on the public education system. The elaboration of proposed projects from Superior Education Institutions (SEI or IES) must be in cooperation with schools, also featuring scholarships for teachers' teams involved in the project over IES and school, on which some supervising teachers work together with undergraduate students.

These are the questions that directed the work: "How to qualify teachers for professional education for them to be reflective and analyze the teaching methodologies in the technical school?. Also: How to qualify them so, during teaching training, they are technically capacitated to develop practical activities on professional education schools and, at the same time, long for an emancipating school project for youngsters in society?; and How to prepare them so they, along with a group of vocational education students, develop a teaching identity?". Without the pretense of draining out those questions, students of graduation in Agricultural Sciences and Biological Sciences from a countryside São Paulo State University took part in this subproject.

## 2. Vocational education and the teaching qualification

The high school has been a teaching tier with alarming school evasion numbers. Uneven access levels in different regions of Brazil, especially in rural areas, are the result of different circumstances, restricting the access and permanence in formal education and study follow-up on high school for the young (KOHATSU, 2016). In that sense, the search for vocational education organized along with regular high schooling is a qualification alternative for those and, among the alternatives, there are the technical courses in professional agricultural.

In the Brazilian educational system, high school dramatically lacks attention; given it is the schooling tier in which the majority of students abandons school for reasons such as job seeking or the search for schooling that sees little sense in the current curriculum.

These problems evidence a broader issue related to the preparatory finalities of high school, of the contest between preparing oneself to go on with higher education and training for citizenship and work life. In this contest, there are society-entailed educational projects in which the historical school division, with technical work

preparation, offered to children and youngsters from humble backgrounds, and intellectual education offered to everyone else.

The Brazilian educational system bases in two distinct schooling foundations: one of them destined to qualify instrumental workers, and the other to qualify intellectual workers; which explains the structural duality of this system (KOHATSU, 2016). Historically, the division of schools between propaedeutic and professional followed the logic behind social-technique work division: vocational education aims at workers, and humanistic education aims at those who are preparing themselves to be ruling and intellectual assets in society; in theory, elite which earmarked the intellectual work (KUENZER, 2001).

On the other side, the idea of a unitary and polytechnic school that has worked as its educational principle requires integration between science and culture in the training process as a basis to devise a schooling qualification (SAVIANI, 2007).

A public quality school for everyone that faces adverse life challenges and inclusion with decent work conditions could be the perspective of one of the projects. However, exclusion and difference can mark the contest for other social projects. Therefore, it is not a coincidence the discussions regards the high school remodeling, the last step in primary education according to the National Law of Bases and Directives – “LDB” (BRASIL, 1996).

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**A public quality school for everyone that faces adverse life challenges and inclusion with decent work conditions could be the perspective of one of the projects**

Brazilian law was a prodigy in establishing vocational education as an item, setting the value to it by placing it in a specific chapter in the LDB: chapter IV - Vocational Education. The law assets the development of the vocational education along with regular schooling or through different strategies of continued education, in specialized institutions or work environment.

According to Kuenzer (1999), changes in the production model, from Taylorist/Fordist foundation to neoliberal-globalized base, present new demands to the workforce and, consequently, require adjusted preparation at vocational education schools.

A pedagogy that seeks student discipline allies itself to strict selection and organization of content, as fragmented as the industrial organization in the Taylorist/Fordist model in which linearity (and sequencing) of content seems to follow a sequence of actions during work routine. Copies, memorized answers to tests from students, verbal exposition to content represent means of teaching that collaborate to the expectations from workers in the production process in regards to memorization, orientation, reception capacity, and discipline. There was no value for pedagogical practices founded in interdisciplinary and student participation in that teaching context.

On the other hand, new demands from workers to work environment (KUENZER, 1999), from the need to learn under new contexts to seeking solutions for various problems to increase productivity in a model that is biased towards inserting

neoliberal optics. Globalization allows thinking of adjusting processes to many socioeconomic and cultural realities to spread products in new markets. The author refers this organizational model as neoliberal-globalized (KUENZER, 1999).

Such changes to the production model and challenges rose from it are treating during qualification of teachers for vocational education. Inserting those worries with workers' demands and pedagogical practice may provide greater criticality to qualification process of a teacher. It also can favor the elaboration of educational planning supported by social and intellectual training of the vocational student without restraining itself to strict and repetitive models or techniques prepared by other, in which the copy has its value without analysis or improvement.

Training towards vocational education tends to seek for opportunities in which the bachelor student may articulate cognitive tasks demanded at the classroom, worrying itself to comprehension, reflection upon deeds and their consequences placed on the ethical-moral fields, and creation tasks, involving new ethical, social and environmentally responsible solutions.

Another aspect is preparing teachers to collaborate on the development of critical and analytical capabilities of students in regards to the work environment, including discussing possibilities of work exploring and ways of strengthening the workers.

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**Agricultural technical schools had a considerable decrease in academic load reserved for a specific technical degree**

The National Curriculum Guidelines for High School Level Technical Vocational Education (BRASIL, 2012) incorporate respect to ethical values, whole student qualification, interdisciplinarity and inseparability between theory and practice in the teaching and learning process. Those directives also signal the need for regulation of the curricula by principles such as contextualization, flexibility, and interdisciplinarity on using educational strategies, which tend to favor integration between professional theory and practice. It is expected,

therefore, that those curriculum principles to be included and discussed at teachers' training, so they can act in vocational education.

As for technical agricultural education, tasks increase once such schools must keep their practice areas, demanding practical work from students. Such tests, as reported below, can be thought over towards a qualification that aims for sufficiency in preparing the student as a capable workforce to face challenges that tend to demand more from the worker in penurious work forms.

Qualification should not be a solution able to, by itself, create jobs or lever up the economy for, as Moraes mentioned (2001), the creation of new job positions comes from economic growth policies and new productive investments, which brings work and capital relationship.

According to Pipitone (2016), for the structure and functioning of agriculture technical schools, the LDB and Act # 2208/97, at the time, was impactful in regards to educational work routines and school organization. Since agricultural



technical schools had a considerable decrease in academic load reserved for a specific technical degree, such qualification rendered inadequate when it comes to the required skill set for the undergraduate students. There has been a decrease on practical classes' hours in which experimental cultivation is likely to happen, zotechnical practice, soil management, livestock and vegetable production and food conservation, which in turn compromised the technical competences training in those courses.

### **3. Gardens and teaching training with practical activities**

The group from Pibid subproject has performed for two years in a public professional education school from the State Vocational System in São Paulo, rural area. It is an interdisciplinary subproject in which knowledge about soil, water, planting, seeds, sustainability and pedagogical understanding had relevance on the profiles of practical activities involved in the work of the gardens' students. In practical activities, the incentive to research and investigation to students in proposals, in which the teacher acts as a guide through the process (ANDRADE; MASSABNI, 2011).

Besides the university teacher who proposed the subproject, participate a supervising professor from Pibid and other teachers from the school. Also collaborated ten students and a graduation professor, even though there was a relay on every year. The school students had access to lodging, and many studied under the regimen of a boarding school. Most of them originated from rural areas and the school's vicinities, which was in an urban zone of a small city. There were other courses in the school, but it was predominantly teaching in the agro pastoralism field. Evasion was a big issue – the school did not allow the collection of objective data for evidence, students and the supervising teacher presented that information.

The focus was the graduation of students under licentiate degree in Agricultural Sciences. Those have, as their originating course, Agronomical or Forestry Engineering, and the presentation option for graduation after entering those courses in the university hosted the subproject. Graduation in Agricultural Sciences seeks to meet the qualification of teachers for fields of Agricultural and Environment, following identification on National Curriculum References for Vocational Education (BRASIL, 2000b).

According to the 2015 political-pedagogical project from the Luiz de Queiroz College of Agriculture (ESALQ), of the University of São Paulo (USP), the graduation in Agricultural Sciences aims to prepare teachers for professional education of vocational level, especially in the fields of agro-pastoralism, forestry, and environment. It also qualifies them for acting in diverse institutions, governmental or not, which seek to meet the demands of educational fields (ESCOLA SUPERIOR DE AGRICULTURA LUIZ DE QUEIROZ, 2015, p. 2).

The garden gives students the possibility of learning about cultivation ways, healthy eating, valuing contact with the natural environment, among others, depending

on the pedagogical proposal. Upon preparing classes with the garden, students have reflected about the little learning on technical instrumentation related to the cultivation of a garden in their schooling experiences and have faced both the need of learning about them and also to learn how to teach them.

An example of such was the proposal of working teaching with research: the supervising teacher invited the students to organize a study group to support work on the already existing garden at the school. The attempt to teach by taking students to investigate concerned lettuce cultivation, a vegetable frequently part of Brazilians' diets.

The involved student has related that she had a university class and sought to learn more, on top of acquiring seedlings. She also sought, along with an undergraduate student who was her schoolwork pair, to propose research methods that integrated computers, taking students to measure the seedlings' growth and collect experimental data in graphs to base future choices related to cultivation forms. The function of preparing students for instruments in the preparation of the garden was part of the worries, but the idea of teaching them to seek for knowledge persisted.

One of the discussions was how to make lettuce production marketing viable at school and on a farm. The issues of workers in the agricultural field and the technician's role to support them had been present in a spot of dissonance: how to organize and deal with a cooperative at school. The school was supposed to have a productive garden to supply lettuce to its cafeteria and make revenue for the own school's cooperative. This expectation from the school rose with the support from Pibid on the understanding about lettuce cultivation.

However, since the process of learning requires trial, errors, thought the process and new ways of rationalizing cultivation, the outcome was low. However, should it be high? One should not demand from students the performance of an actual working professional. That way, the group came to a consensus, including discussion with the school's coordinating committee that those gardens are pedagogical in the sense one can learn from it but not necessarily to make revenue.

On top of that, learning how to deal with this practical activity on teaching in a vocational education school turned to be, for undergraduate students and the teacher, an opportunity to recognize their potential, limitations, alternatives (such as the organic garden). Besides that, the implications for a rich world, including the possibility of being present in familiar or large-scale agriculture, as well as the role of Brazil in the global agricultural sector. Still, it has to be taken into consideration the difficulty to produce regularly and scalable due to harvest time of each cultivation, the available space for cultivation and the low productivity of different schooling times, such as vacations and exams.

Productive learning should not be confused with a worker's professional exercise. Since the project was dealing with the learning of a craft, it is hard to bring results under the precision of actual work. Although attractive as means of simulating professional life, there are restrictions.



On the other hand, the idea of learning about collective work in cooperatives as an aspect of professional education was a learning target. Seen as linked to disciplines like cooperatives, even though the idea behind the cooperative at school was incipient, it was held as relevant to insert the undergraduate student into issues related to preparing the work world of the future agricultural worker, by fortifying workgroups seeking better conditions of marketing and subsistence with their own work.

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**Pibid graduation students had opted for a dialogical education, following a Freirian pedagogy tree**

That way, vocational education was the essence of discussions with Pibid students about necessary adjustments to the practice with gardens to meet this teaching model.

A different group of undergraduate students worked on a different garden, idealized by vocational school students. The supervising teacher coordinated the first one and guided the students in its maintenance. Decisions focused on managers, such as area choice (not always based on technical criteria). Students themselves maintain the cultivated areas at school, for there is only one educational support technician according to managers' information. This way of teaching would often cause students to abandon theory classes, destined to perform maintenance routines in productive areas of the school.

On the second proposal, on request by the school's students, an area was destined to garden cultivation. Their only demand was that the school would not intervene in the garden or on actions from the students responsible for it, as informed. It was allowed, however, that the undergraduate students from Pibid to support them because the area had been made available to them for some time with no ongoing production.

The soil cultivation value and respect to the ones caring for it and their territories, as well as sustainability, has always been the immediate horizon in this scholarship students' group from Pibid, taking into consideration even their profiles.

Pibid graduation students had opted for a dialogical education, following a Freirian pedagogy tree. The option for an organic garden, once they started planting miniature tomatoes, has happened through a constructive dialog because the students were just about to give up that option, leaning over a search for pesticides due to problems with ants. One of the discussed solutions with the help of scholarship bearers was propping the tomato stalks with props that prevented soil ants from reaching the plant. There was a small production due to student realization [sic] and tomatoes donation to Pibid members.

In this issue, the graduator's role was to try organizing the support process to students; undergraduate students were unlikely to adhere to this suggestion because it felt like an intervention, to the point they noticed that organizing also meant to plan together with students, under agreements, without the imposition of strategies.

Pibid members from then on started to ask students, encouraging them to seek and analyze options for problem solution, besides collaborating by supporting students

in the search for information on the internet and books. Pibid has also collected books and other means of research that the university's library would allow, donating them to the vocational school. With such pedagogical approach, future technicians started to trust their production capabilities, and students started to trust their teaching capabilities.

For teaching training, the process wealth was that students and the teacher had experienced a non-directive teaching and learning and the traditional strict approach would impair the trial and error and the search for the students' own potential in creating ways to deal with adverse circumstances in practice.

It is worth to highlight that Pibid members linked to the subproject at the time had an affinity with this work form. It was up to the university deputy coordinator to recognize this professional profile, respecting the possibility for students to develop pedagogical practices with which they identify themselves with as a support means to a building process of a professional identity as teachers.

#### **4. School rearrangement and different training perspectives for teaching in vocational education**

The initial request was that Pibid graduation students would aid in cultivation and taught the technical instrumental part to school students under teacher oversight. This vision was different from the Pibid perspective, based on expectations of a reflective, participating and autonomous qualification in proposing pedagogical practices, linking theory and practice with no bounds to technique – mainly by not allocating undergraduate teachers to technical roles of maintenance support.

It is possible that many vocational schools are still biased towards a technician *modus operandi*, following the Farm-School model widespread in vocational teaching on the agro pastoralism field, top-rated on the 1960s and 1970s (SOARES, 2004). That is also a hierarchical bias based on segmented productive models and strict relations, instilling one-sided respect towards supervisors and unrestrained obedience to orders without suggestions – as imagined for Taylorist/Fordist organizations explained by Kuenzer (1999).

There was an evident difference between Pibid and the school pedagogical practices. Therefore, the graduation students understood the respect to school culture and the need for an agreement about the pedagogical options between the involved parties, school, and university. It seems that the Taylorist/Fordist model remained influent on the school that Pibid experienced its teaching qualification process. However, new ways of teaching and a new teacher's identity were the project's target.

In practical activities, it is fundamental to the existence recognition of a procedural understanding, as described by Zabala (1998). Contesting with teaching options from a teacher who prioritize information memorization, the author starts from the premise that a student performs the construction of knowledge during execution of

practical tasks. Learning content means facts, concepts, procedures, and attitudes (ZABALA, 1998).

Procedures can either be steps of a method or technique that demand actions from a student. They refer to it upon knowing how to do something. In practice, they are action sequences to build knowledge. Experimental classes are crucial to expertise and curriculum referential for the agro pastoralism field (BRASIL, 2000a) recommend contextual, experimental classes in the form of projects and workshops. Pibid has proposed this form of development of practical activities.

Pibid works, including meetings with the management team at school, made the curriculum rearrange possible, providing gaps in the students' schedule program for practical activities. They had in practice hours the motivational axis to be in a school that would certify them for work.

On many occasions, "classes" were requested for undergraduate students from Pibid in which projects and workshops would occur. They were relevant to students because only a few teachers from the "applied" field would develop practical classes. Time for students to work on production systems' maintenance at school and projects that required procedural learning actions, such as the garden one, were lacking. Pibid used the spots on the schedule program. However, the school itself had to think about proposals such as shifting their activities for practical activities' expected hours (once the Pibid presence was not constant).

This worry is, in fact, an object of a paper turned to reassigning Agricultural Education (BRASIL, 2009), which refers to develop quality teaching in agro-technical schools, including a proportional increase of practical activities in the disciplines' hourly load – a professional commitment from teachers who requires rethinking their pedagogical practice.

The school established that students should engage in their teachers' school projects or Pibid's as part of their training, relating them to a work or graduation thesis. One of the fragilities of observed instruction, originating from low attention to practical activities in a training proposal has therefore decreased. Engagement in professional practice is part of the graduating demands for vocational level education, as mentioned on National Curriculum References for Vocational Education (BRASIL, 2000b, p. 105), which postulate the estimate and inclusion of professional practice time in curriculum organization and, excluding supervised internships, in the minimal course schedule.

Graduation students have experienced those changes at school with interest; they had opportunities to reflect as the organization and direction of school influenced daily pedagogical of their teacher. They could also rethink professional qualification, facing the frailty of opportunities for practical activities provided to students. *Referenciais Curriculares Nacionais da Educação Profissional de Nível Técnico para a área de Agropecuária* (BRASIL, 2000a) value the accomplishment of a curriculum remodeling in the sense of articulating theory to practice and embed modernization

instruments, such as the internet. The objective is building knowledge for the vocational graduated professional to engage with work necessities of its time.

The school would rely on a room with some computers on which the undergraduate students from Pibid could notice the lack of integration of computer classes to the demands of qualification of a technician in the agricultural field, for dissociated from an interdisciplinary and integrating motif with other disciplines and issues from the sector. For example, the use of computers in agricultural planning and cultivation sites decision taking. Pibid has acted in the sense of supporting the installation of free software Spring for geoprocessing with maps and offered a workshop on the subject, collaborating with the use of computers in classes.

The presentation next is a systematization of specificities on training teachers for vocational education in the agricultural field, with gardens.

A group has opted for teaching with research, more directional, and the other with a more open and dialogic way. That way, the undergraduate students were able to experiment teaching ways that respect build of a teaching identity.

They had learned about procedural knowledge upon preparing and developing practical activities for teaching. That way, future teachers had learned the need to understand procedures and perform them efficiently, developing the knowledge so they could teach students.

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### **The collective efforts to reflect, theorizing and bringing new looks are challenges to the qualifiers**

At Pibid, students supported themselves under the commitment of taking one another to learn and work harder on pedagogical actions. Therefore, they started reflecting on how to teach in a context in which students want to be autonomous and cultivate their gardens. They committed to helping students overcome their hardships on learning points of view.

The undergraduate students, in proposal and development of practical garden-contextualized activities, had their attention turned to teaching complexity, discussed in texts of teachers' qualification. That way, for the contextualization of practice in gardens, with knowledge not restricted to vocational, the process demanded reflection and construction of new knowledge. Facing this complexity has been different because some require more support from the university teacher and the supervising teacher; others prefer not to seek support at all, "experimenting" their potential as teachers.

Even though a different perspective sought for work on gardens, the instrumental work (technique and procedures) of "how to" was more prominent among the undergraduate students. The collective efforts to reflect, theorizing and bringing new looks are challenges to the qualifiers, as well as clarifying that school maintenance routine activities are not qualifying duties for teaching.

To learn about schooling culture of a vocational education school in the rural area is a relevant aspect of teaching education. As future teachers in Agricultural Sciences, many were not aware of professional education schools and their specificities.

The questioning over school's educational perspective, its bureaucratic issues and hierarchical setting among managers and teachers – and among teachers and students – was a frequent subject in project orientation.

Mizukami (2000) considers that learning how to teach can be a complicated process that includes past experiences, affectional, cognitive and ethical factors. The graduating student's pedagogical ideas, the experiences they considered necessary in their university experience, factors related to schooling culture to which some didn't identify themselves with, among other circumstances, were influences in training process.

To think about vocational education requires recognizing that teachers, while working in this field, need to know more than applied techniques on specific work, such as those involved in handcraft directed to garden implementation. It requires enabling the building of teaching pitted against a reductionist perspective, but also critical-reflective, adjusting teachers' qualification in professional education to formation preconditions discussed by Zeichner (1993), Imbernón (1994) and Mizukami (2000), among other authors who dedicated themselves to teachers' training. That said, the project envisioned the offer of education not considered as second-class, according to Kuenzer (1999).

## 5. Final considerations

Working with the garden was not an easy task to the future teachers. The school realized the presence of undergraduate students as an opportunity of collaborating the specific technical part and cultivation maintenance. There was the need for the argument regarding the need of the garden as a "pedagogical garden", as means of learning for both school students and their future teachers. The school can seek ways of maintaining those areas, what occurred to rearranging the class schedules, making room for students' practice and identifying it as part of the curriculum.

The garden was the target of reflection on the learning process itself in the originating course about cultivating or related fields. Depending on the involved student group in the period they worked on the garden for education, the process was more or less collaborative, but through meetings, they led students to plan, analyze, and criticize and also "know how" perform, including field technology. The undergraduate students in the process trended towards seeking collaborative means of comprehending the involved concepts of building knowledge between teacher and student.

Therefore, reflecting about youngster problematic that seek professional education, valuing the emancipation process to be experienced in determined teaching work optics as well as comprehending the characteristics of vocational education in their specifics of teaching and learning in a formation context for work is something to be integrated into the teachers' training for professional education. The work with gardens demanded to reassign practical activity as teaching methodology together with involved graduation students.

To summarize, Pibid project sought for a teaching training that could overcome the challenge of preparing people for the work world, with strategies that suppress the more and present risk in a society that directs the guilt of under qualification to the individual without providing training worthy of facing socioeconomic inequality to enter and stay at work. Also, little aware of the need for teachers' instruction in a reflective perspective for vocational education.

## References

ANDRADE, M. L. F.; MASSABNI, V. G. O desenvolvimento de atividades práticas na escola: um desafio para os professores de ciências. **Ciência & Educação**, Bauru, v. 17, n. 4, p. 835-854, 2011.

ARAÚJO, R. Formação de docentes para a educação profissional e tecnológica: por uma pedagogia integradora da educação profissional. **Educação & Trabalho**, São Paulo, v. 17, n. 2, p. 53-63, 2008.

BRASIL. Lei n. 9.394, de 20 de dezembro de 1996. Lei de Diretrizes e Bases da Educação Nacional. **Diário Oficial da União**, Brasília, DF, 23 dez. 1996.

BRASIL. Ministério da Educação. Secretaria de Educação Média e Tecnológica. **Referenciais curriculares nacionais da educação profissional de nível técnico: área profissional: agropecuária**. Brasília, DF, 2000a.

BRASIL. Ministério da Educação. Secretaria de Educação Média e Tecnológica. **Referenciais curriculares nacionais da educação profissional de nível técnico: introdução**. Brasília, DF, 2000b.

BRASIL. Ministério da Educação. Secretaria de Educação Profissional e Tecnológica. **(Re)significação do ensino agrícola da rede federal de educação profissional e tecnológica**. Brasília, DF, 2009.

CARVALHO, O. F.; SOUZA, F. H. M. Formação do docente da educação profissional e tecnológica no Brasil: um diálogo com as faculdades de educação e o curso de Pedagogia. **Educação & Sociedade**, Campinas, v. 35, n. 128, p. 883-907, 2014.

CONSELHO NACIONAL DE EDUCAÇÃO (Brasil). Câmara de Educação Básica. Resolução n. 6, de 20 de setembro de 2012. Define as Diretrizes Curriculares Nacionais para a Educação Profissional Técnica de Nível Médio. **Diário Oficial da União**, Brasília, DF, 21 set. 2012. Seção 1, p. 22. Disponível em: <<http://portal.mec.gov.br/escola-de-gestores-da-educacao-basica/323-secretarias-112877938/orgaos-vinculados-82187207/17417-ceb-2012>>. Acesso em: 17 nov. 2015.



ESCOLA SUPERIOR DE AGRICULTURA LUIZ DE QUEIRÓZ. **Projeto pedagógico do Programa de Licenciatura em Ciências Agrárias**. Piracicaba, 2015. Disponível em: <[http://www4.esalq.usp.br/graduacao/sites/www4.esalq.usp.br/graduacao/files/ppp\\_lic\\_cienc\\_agrarias\\_2015.pdf](http://www4.esalq.usp.br/graduacao/sites/www4.esalq.usp.br/graduacao/files/ppp_lic_cienc_agrarias_2015.pdf)>. Acesso em: 4 jun. 2017.

GARIGLIO, J. A.; BURNIER, S. Saberes da docência na educação profissional e tecnológica: um estudo sobre o olhar dos professores. **Educação em Revista**, Belo Horizonte, v. 28, n. 1, p. 211-236, 2012.

IMBERNÓN, F. **La formación y el desarrollo profesional del profesorado**: hacia una nueva cultura profesional. Barcelona: Editorial Graó, 1994.

KOHATSU, L. N. Breve histórico da educação profissional no Brasil: a dualidade em questão. In: MASSABNI, V. G.; PIPITONE, M. A. P. (Org.). **Formação de professores para a educação profissional**. Curitiba: CRV, 2016. p. 19-41.

KUENZER, A. Z. **Ensino médio e profissional**: as políticas do estado neoliberal. 3. ed. São Paulo: Cortez, 2001.

KUENZER, A. Z. As políticas de formação: a constituição da identidade do “professor sobranter”. **Educação & Sociedade**, Campinas, v. 20, n. 68, p. 163-183, 1999.

MASSABNI, V. G. Formação de professores para a educação profissional: uma questão em aberto. In: MASSABNI, V. G.; PIPITONE, M. A. P. (Org.). **Formação de professores para a educação profissional**. Curitiba: CRV, 2016. p. 43-61.

MASSABNI, V. G.; PIPITONE, M. A. P. Projeto PIBID: uso da tecnologia e de atividades práticas no espaço escolar. In: CONGRESSO NACIONAL DE FORMAÇÃO DE PROFESSORES, 2.; CONGRESSO ESTADUAL PAULISTA SOBRE FORMAÇÃO DE EDUCADORES DA UNESP, 12., 2013, Águas de Lindóia. **Atas...** Águas de Lindóia: UNESP, 2013. p. 1063-1073.

MIZUKAMI, M. G. N. Casos de ensino e aprendizagem profissional da docência. In: ABRAMOVICZ, A.; MELLO, R. R. (Org.). **Educação**: pesquisas e práticas. Campinas: Papyrus, 2000. p. 139-161.

MORAES, C. S. V. O que há de novo na educação profissional no Brasil. **Trabalho & Educação**, Belo Horizonte, n. 8, p. 13-45, 2001.

NÓVOA, A. Formação de professores e profissão docente. In: NÓVOA, A. (Coord.). **Os professores e a sua formação**. Lisboa: Dom Quixote, 1992. p. 15-33.

PIPITONE, M. A. P. Apontamentos sobre o ensino técnico agrícola no Brasil. In: MASSABNI, V. G.; PIPITONE, M. A. P. (Org.) **Formação de professores para a educação profissional**. Curitiba: CRV, 2016. p. 81-97.

SAVIANI, D. Trabalho e educação: fundamentos ontológicos e históricos. **Revista Brasileira de Educação**, Rio de Janeiro, v. 12, n. 34, p. 152-180, 2007.

SOARES, A. M. D. Formação de técnicos em agropecuária: currículos como instrumento de políticas públicas de regulação. In: REUNIÃO NACIONAL DA ANPED, 27., 2004, Caxambu. **Atas da...** Rio de Janeiro: Anped, 2004. p. 1-17.

ZABALA, A. **A prática educativa**: como ensinar. Porto Alegre: Artmed, 1998.

ZEICHNER, K. M. **A formação reflexiva de professores**: ideias e práticas. Lisboa: EDUCA, 1993.