



**Michéle Barreto Justus**  
(Organizadora)

# **Formação de Professores e a Condição do Trabalho Docente**

---

Michéle Barreto Justus  
(Organizadora)

# Formação de Professores e a Condição do Trabalho Docente

Atena Editora  
2019

2019 by Atena Editora  
Copyright © Atena Editora  
Copyright do Texto © 2019 Os Autores  
Copyright da Edição © 2019 Atena Editora  
Editora Executiva: Prof<sup>a</sup> Dr<sup>a</sup> Antonella Carvalho de Oliveira  
Diagramação: Natália Sandrini  
Edição de Arte: Lorena Prestes  
Revisão: Os Autores

O conteúdo dos artigos e seus dados em sua forma, correção e confiabilidade são de responsabilidade exclusiva dos autores. Permitido o download da obra e o compartilhamento desde que sejam atribuídos créditos aos autores, mas sem a possibilidade de alterá-la de nenhuma forma ou utilizá-la para fins comerciais.

### **Conselho Editorial**

#### **Ciências Humanas e Sociais Aplicadas**

Prof. Dr. Álvaro Augusto de Borba Barreto – Universidade Federal de Pelotas  
Prof. Dr. Antonio Carlos Frasson – Universidade Tecnológica Federal do Paraná  
Prof. Dr. Antonio Isidro-Filho – Universidade de Brasília  
Prof. Dr. Constantino Ribeiro de Oliveira Junior – Universidade Estadual de Ponta Grossa  
Prof<sup>a</sup> Dr<sup>a</sup> Cristina Gaio – Universidade de Lisboa  
Prof. Dr. Deyvison de Lima Oliveira – Universidade Federal de Rondônia  
Prof. Dr. Gilmei Fleck – Universidade Estadual do Oeste do Paraná  
Prof<sup>a</sup> Dr<sup>a</sup> Ivone Goulart Lopes – Istituto Internazionele delle Figlie de Maria Ausiliatrice  
Prof. Dr. Julio Candido de Meirelles Junior – Universidade Federal Fluminense  
Prof<sup>a</sup> Dr<sup>a</sup> Lina Maria Gonçalves – Universidade Federal do Tocantins  
Prof<sup>a</sup> Dr<sup>a</sup> Natiéli Piovesan – Instituto Federal do Rio Grande do Norte  
Prof<sup>a</sup> Dr<sup>a</sup> Paola Andressa Scortegagna – Universidade Estadual de Ponta Grossa  
Prof. Dr. Urandi João Rodrigues Junior – Universidade Federal do Oeste do Pará  
Prof<sup>a</sup> Dr<sup>a</sup> Vanessa Bordin Viera – Universidade Federal de Campina Grande  
Prof. Dr. Willian Douglas Guilherme – Universidade Federal do Tocantins

#### **Ciências Agrárias e Multidisciplinar**

Prof. Dr. Alan Mario Zuffo – Universidade Federal de Mato Grosso do Sul  
Prof. Dr. Alexandre Igor Azevedo Pereira – Instituto Federal Goiano  
Prof<sup>a</sup> Dr<sup>a</sup> Daiane Garabeli Trojan – Universidade Norte do Paraná  
Prof. Dr. Darllan Collins da Cunha e Silva – Universidade Estadual Paulista  
Prof. Dr. Fábio Steiner – Universidade Estadual de Mato Grosso do Sul  
Prof<sup>a</sup> Dr<sup>a</sup> Girlene Santos de Souza – Universidade Federal do Recôncavo da Bahia  
Prof. Dr. Jorge González Aguilera – Universidade Federal de Mato Grosso do Sul  
Prof. Dr. Ronilson Freitas de Souza – Universidade do Estado do Pará  
Prof. Dr. Valdemar Antonio Paffaro Junior – Universidade Federal de Alfenas

#### **Ciências Biológicas e da Saúde**

Prof. Dr. Benedito Rodrigues da Silva Neto – Universidade Federal de Goiás  
Prof.<sup>a</sup> Dr.<sup>a</sup> Elane Schwinden Prudêncio – Universidade Federal de Santa Catarina  
Prof. Dr. Gianfábio Pimentel Franco – Universidade Federal de Santa Maria  
Prof. Dr. José Max Barbosa de Oliveira Junior – Universidade Federal do Oeste do Pará

Profª Drª Natiéli Piovesan – Instituto Federal do Rio Grande do Norte  
Profª Drª Raissa Rachel Salustriano da Silva Matos – Universidade Federal do Maranhão  
Profª Drª Vanessa Lima Gonçalves – Universidade Estadual de Ponta Grossa  
Profª Drª Vanessa Bordin Viera – Universidade Federal de Campina Grande

### **Ciências Exatas e da Terra e Engenharias**

Prof. Dr. Adélio Alcino Sampaio Castro Machado – Universidade do Porto  
Prof. Dr. Eloi Rufato Junior – Universidade Tecnológica Federal do Paraná  
Prof. Dr. Fabrício Menezes Ramos – Instituto Federal do Pará  
Profª Drª Natiéli Piovesan – Instituto Federal do Rio Grande do Norte  
Prof. Dr. Takeshy Tachizawa – Faculdade de Campo Limpo Paulista

### **Conselho Técnico Científico**

Prof. Msc. Abrãao Carvalho Nogueira – Universidade Federal do Espírito Santo  
Prof. Dr. Adaylson Wagner Sousa de Vasconcelos – Ordem dos Advogados do Brasil/Seccional Paraíba  
Prof. Msc. André Flávio Gonçalves Silva – Universidade Federal do Maranhão  
Prof.ª Drª Andreza Lopes – Instituto de Pesquisa e Desenvolvimento Acadêmico  
Prof. Msc. Carlos Antônio dos Santos – Universidade Federal Rural do Rio de Janeiro  
Prof. Msc. Daniel da Silva Miranda – Universidade Federal do Pará  
Prof. Msc. Eliel Constantino da Silva – Universidade Estadual Paulista  
Prof.ª Msc. Jaqueline Oliveira Rezende – Universidade Federal de Uberlândia  
Prof. Msc. Leonardo Tullio – Universidade Estadual de Ponta Grossa  
Prof.ª Msc. Renata Luciane Polsaque Young Blood – UniSecal  
Prof. Dr. Welleson Feitosa Gazel – Universidade Paulista

#### **Dados Internacionais de Catalogação na Publicação (CIP) (eDOC BRASIL, Belo Horizonte/MG)**

F723 Formação de professores e a condição do trabalho docente [recurso eletrônico] / Organizadora Michéle Barreto Justus. – Ponta Grossa, PR: Atena Editora, 2019. – (Formação de Professores e a Condição do Trabalho Docente; v. 1)

Formato: PDF

Requisitos de sistema: Adobe Acrobat Reader

Modo de acesso: World Wide Web

Inclui bibliografia

ISBN 978-85-7247-440-5

DOI 10.22533/at.ed.405190507

1. Educação. 2. Professores – Formação. 3. Prática de ensino.  
I. Justus, Michéle Barreto. II. Série.

CDD 370.71

**Elaborado por Maurício Amormino Júnior – CRB6/2422**

Atena Editora  
Ponta Grossa – Paraná - Brasil  
[www.atenaeditora.com.br](http://www.atenaeditora.com.br)  
contato@atenaeditora.com.br

Atena  
Editora

Ano 2019

## APRESENTAÇÃO

Abordar o tema “formação de professores e a condição do trabalho docente”, especialmente nos tempos hodiernos, é uma tarefa complexa e delicada. Complexa porque envolve elementos de natureza múltipla, que se fundamentam e se desenvolvem a partir de aspectos legais, sociais, humanos, econômicos, estruturais; e delicada, porque necessita de uma visão crítica sobre a realidade, a fim de buscar olhares e ações sobre os elementos que agregam e se inter-relacionam no campo educacional.

Assim, no intuito de facilitar a compreensão do leitor sobre assuntos tão plurais e possibilitar uma leitura mais prática e agregadora, este livro traz 53 artigos organizados em dois volumes, levando em conta a proximidade dos temas apresentados.

No volume 1, os temas discutidos giram em torno de assuntos relacionados à formação de professores, especialmente no que diz respeito às experiências *da* e *na* formação inicial e continuada, além da gestão democrática.

No volume 2, os autores apresentam seu trabalhos sobre assuntos pertinentes às relações estabelecidas entre educação, formação docente e uso das tecnologias, trazendo contribuições valiosas para a leitura de temas acerca do trabalho docente.

Abordam as transformações ocorridas nesse campo discorrendo sobre a precarização do trabalho, o adoecimento dos professores e a desconsideração dos saberes docentes até chegar à falta de autonomia destes profissionais; apresentam também diferentes metodologias de ensino e recursos didáticos que podem se transformar em estratégias úteis para a melhoria do desempenho discente, assim como trazem à tona estudos sobre a inclusão e o trabalho docente.

Por fim, esta obra caracteriza-se como um rico instrumento para a leitura de profissionais da área da educação ou pessoas que tenham alguma relação com o trabalho docente, pois propicia importantes reflexões acerca do multifacetado cenário educacional.

Michéle Barreto Justus

## SUMÁRIO

### FORMAÇÃO DE PROFESSORES RELATOS SOBRE A FORMAÇÃO INICIAL E A FORMAÇÃO CONTINUADA

<b>CAPÍTULO 1</b> .....	<b>1</b>
A PRÁTICA PEDAGÓGICA SOCIOCONSTRUTIVISTA DA CARTOGRAFIA DO CURSO DE LICENCIATURA EM GEOGRAFIA DO IFPE POR MEIO DO ESTÁGIO SUPERVISIONADO	
Wagner Salgado da Silva Ana Paula Torres de Queiroz	
DOI 10.22533/at.ed.4051905071	
<b>CAPÍTULO 2</b> .....	<b>12</b>
ESTÁGIO SUPERVISIONADO: CONSTRUÇÕES DE SABERES DA GESTÃO ESCOLAR	
Jussara Bueno de Queiroz Paschoalino Jorge Nassim Vieira Najjar Tháís Yunes Pereira	
DOI 10.22533/at.ed.4051905072	
<b>CAPÍTULO 3</b> .....	<b>26</b>
POSSIBILIDADES DE EMANCIPAÇÃO HUMANA: OS CURSOS DE FORMAÇÃO DE PROFESSORES NO DEPARTAMENTO DE CIÊNCIAS HUMANAS DA UFF	
Cecilia Neves Lima	
DOI 10.22533/at.ed.4051905073	
<b>CAPÍTULO 4</b> .....	<b>36</b>
GÊNERO COMO CATEGORIA ANALÍTICA NA FORMAÇÃO INICIAL DE PROFESSORES/AS	
Gleiton Silva de Sales	
DOI 10.22533/at.ed.4051905074	
<b>CAPÍTULO 5</b> .....	<b>47</b>
POLÍTICA DE DIVERSIDADE NA EDUCAÇÃO INFANTIL E FORMAÇÃO DE PROFESSORAS DE CRECHE DO PROINFÂNCIA NO EXTREMO SUL DA BAHIA	
Márcia Lacerda Santos Santana Cândida Maria Santos Daltro Alves	
DOI 10.22533/at.ed.4051905075	
<b>CAPÍTULO 6</b> .....	<b>59</b>
PRÁTICAS COMPARTILHADAS E TECITURAS DE SABERES: CURRÍCULOS E VIVÊNCIAS NA EDUCAÇÃO INFANTIL	
Luziane Patricio Siqueira Rodrigues Flávia Fernanda Ferreira de Lucena Rosane Maria Serrano Zarro	
DOI 10.22533/at.ed.4051905076	

<b>CAPÍTULO 7</b> .....	<b>66</b>
VIVÊNCIAS DE PESQUISA E PRÁTICA DE ENSINO EM PEDAGOGIA NO NOROESTE FLUMINENSE: INTEGRANDO ESPAÇOS DE FORMAÇÃO	
Fernando de Souza Paiva Mariana Santiago Tavares Corrêa Ana Luisa Barros Cunha	
<b>DOI 10.22533/at.ed.4051905077</b>	
<b>CAPÍTULO 8</b> .....	<b>71</b>
A PARTICIPAÇÃO DE ALUNOS DE GRADUAÇÃO EM QUÍMICA NO PIBID: O DESENVOLVIMENTO ACADÊMICO-CIENTÍFICO	
Francisco de Assis Araújo Barros Leidiane Cristina de Sá Sergio Bitencourt Araújo Barros	
<b>DOI 10.22533/at.ed.4051905078</b>	
<b>CAPÍTULO 9</b> .....	<b>81</b>
ESTÁGIO II – ESPAÇOS EDUCATIVOS NÃO ESCOLARES: AGÊNCIA SOCIAL E TRANSFORMAÇÃO PEDAGÓGICA	
Márcia Regina Mendes Santos Maria do Socorro Oliveira	
<b>DOI 10.22533/at.ed.4051905079</b>	
<b>CAPÍTULO 10</b> .....	<b>93</b>
UM CURSO DE LICENCIATURA A DISTÂNCIA NA ÓTICA DOS SEUS ESTUDANTES: O PERFIL DOS EGRESSOS	
Délia de Oliveira Ladeia Josefa Sônia Pereira da Fonseca	
<b>DOI 10.22533/at.ed.40519050710</b>	
<b>CAPÍTULO 11</b> .....	<b>98</b>
QUESTIONAMENTOS ACERCA DA FORMAÇÃO DOCENTE CONTINUADA	
Carmen Lucia Rodrigues Alves	
<b>DOI 10.22533/at.ed.40519050711</b>	
<b>CAPÍTULO 12</b> .....	<b>110</b>
TRABALHO DOCENTE NO INSTITUTO FEDERAL DO ESPÍRITO SANTO - CAMPUS VITÓRIA	
Tatiana das Mercês Marcelo Lima Michele Pazolini Jaqueline Ferreira de Almeida	
<b>DOI 10.22533/at.ed.40519050712</b>	
<b>CAPÍTULO 13</b> .....	<b>123</b>
ANALYSIS OF COMPETENCES IN THE CAREER OF PEDAGOGY IN CHEMISTRY AND SCIENCE OF THE UNIVERSITY OF PLAYA ANCHA	
Bastián Eduardo Cárdenas Godoy. Lastenia Ugalde Meza.	
<b>DOI 10.22533/at.ed.40519050713</b>	

**CAPÍTULO 14 ..... 136**

ANGÚSTIA E TEMPO LÓGICO DE LACAN NO PROCESSO DE ESCRITA AUTOBIOGRÁFICA NA FORMAÇÃO CONTINUADA

Jackson Santos Vitória de Almeida

DOI 10.22533/at.ed.40519050714

**GESTÃO DEMOCRÁTICA**

**CAPÍTULO 15 ..... 148**

O CUMPRIMENTO DA META 19 DO PLANO NACIONAL DE EDUCAÇÃO (2014-2024) NAS CAPITAIS BRASILEIRAS: PERSPECTIVAS E DESAFIOS PARA O PROVIMENTO DOS DIRETORES E A GESTÃO DEMOCRÁTICA

Maria de Fátima Magalhães de Lima

DOI 10.22533/at.ed.40519050715

**CAPÍTULO 16 ..... 155**

A GESTÃO DEMOCRÁTICA NO DISTRITO FEDERAL SOB A TUTELA DO NEOLIBERALISMO: IMPACTOS E DETERMINAÇÕES

Patricia Silva Souza

Otília Maria Alberto da Nóbrega Alves Dantas

DOI 10.22533/at.ed.40519050716

**CAPÍTULO 17 ..... 165**

GESTÃO DEMOCRÁTICA NA ESCOLA: DA CONTRIBUIÇÃO DO TRABALHO COM PROJETOS À AUTONOMIA DOS DISCENTES

Sandra Regina Trindade de Freitas Silva

Enéas Machado

Marli dos Santos Reis

Rafael Feijó Torres

Ubirajara da Silva Caetano

DOI 10.22533/at.ed.40519050717

**RELAÇÕES ENTRE EDUCAÇÃO, FORMAÇÃO DOCENTE E TECNOLOGIA**

**CAPÍTULO 18 ..... 172**

A FORMAÇÃO DE EDUCADORES E O USO DAS TECNOLOGIAS DIGITAIS: A VOZ DOS PROFESSORES

Eloiza da Silva Gomes de Oliveira

DOI 10.22533/at.ed.40519050718

**CAPÍTULO 19 ..... 188**

A CONSTRUÇÃO E EXPOSIÇÃO DE APLICATIVOS NOS CURSOS DE ANÁLISE DE SISTEMAS E SISTEMAS DE INFORMAÇÃO: POSSIBILIDADES DE SITUAÇÕES DE ENSINO/APRENDIZAGEM PARA ALÉM DA SALA DE AULA

Agnaldo Lopes Martins

Leila Jane Brum Lage Sena Guimarães

Ana Paula Diniz Arruda

DOI 10.22533/at.ed.40519050719



<b>CAPÍTULO 20</b> .....	<b>197</b>
O USO DA PLATAFORMA MOODLE NA TUTORIA PRESENCIAL DA DISCIPLINA DE FUNDAMENTOS EM ECOLOGIA	
Catarina de Medeiros Bandeira	
Cleilma Medeiros	
José Weverton Henrique Santos	
Maria Gabriela Galdino dos Santos	
Lucas Borchardt Bandeira	
Maria do Socorro Rocha	
Gilson Aciole Rodrigues	
<b>DOI 10.22533/at.ed.40519050720</b>	
<b>CAPÍTULO 21</b> .....	<b>208</b>
O USO DO AMBIENTE VIRTUAL COMO RECURSO DIDÁTICO NO PROCESSO DE ENSINO-APRENDIZAGEM DE BIOLOGIA GERAL EM CURSOS PRESENCIAIS	
Catarina de Medeiros Bandeira	
Josefa Bruna Lima dos Santos	
Lucas Borchardt Bandeira	
Maria do Socorro Rocha	
Gilson Aciole Rodrigues	
Luciano Façanha Marques	
Isabelle da Costa Wanderley Alencar	
<b>DOI 10.22533/at.ed.40519050721</b>	
<b>CAPÍTULO 22</b> .....	<b>220</b>
WEB CURRÍCULO - APROPRIAÇÕES E POSSIBILIDADES COM TDIC NA APRENDIZAGEM	
Malton de Oliveira Fuckner	
Thiago Barbosa Silva	
<b>DOI 10.22533/at.ed.40519050722</b>	
<b>SOBRE A ORGANIZADORA</b> .....	<b>230</b>

## ANALYSIS OF COMPETENCES IN THE CAREER OF PEDAGOGY IN CHEMISTRY AND SCIENCE OF THE UNIVERSITY OF PLAYA ANCHA

**Bastián Eduardo Cárdenas Godoy.**

University of Playa Ancha of Sciences of the Education, Faculty of natural and exact sciences.

Valparaíso - Chile.

**Lastenia Ugalde Meza.**

University of Playa Ancha of Education Sciences, Faculty of natural and exact sciences

Valparaíso - Chile.

**ABSTRACT:** The following investigation has the purpose of detecting if the competences declared in the graduation profile that are achieved through the study plan, are being acquired by the students based on the beliefs and perceptions that they manifest. It was possible to determine that a large part of the competencies declared in the profile are fully met and evidence was raised that in some training programs are not being developed. The sample that was worked on in this investigation was constituted by students of the career of Pedagogy in chemistry and sciences of the Playa Ancha University of Education Sciences attached to the innovated plan implemented in 2014 by the university to all pedagogical careers. At the end of the analysis process, the results showed that competences in the area of chemistry are being fulfilled and that in mathematical subjects there is a gap with respect to competency-based training, unlike the subjects related to biology.

**KEYWORDS:** Competencies - Innovated plan - Graduation profile - Training plans - students

### INTRODUCTION

The current Chilean education is in constant change and renewal in order to improve teaching-learning processes, focusing on the students as well as the teaching and management staff. As a result of this situation, the development of the student as an integral being, who can respond to the difficulties of his profession, takes on great importance.

The student as a whole, must acquire the three relevant knowledge for the conformation of a competence, these three knowledges are broken down into knowing (factual and declarative knowledge), know-how (skills and abilities) and knowing how to be (attitudes and values).

In the “know-how” competition, the student wants to acquire content and value the learning of said contents. On the other hand, the “know-how” competence aspires to the development of the skills and abilities demanded by the discipline, thus achieving autonomy and integrity. And finally, the competence “knowing how to be” refers to empowering and contributing to the formation of values and attitudes towards different problems

in the specialty. We can understand by competence the performance or the integral performance of the subject, which implies factual or declarative knowledge, abilities, skills, attitudes and values, within an ethical context “(Pimienta, J; 2012).

In order to determine the appreciation, in relation to the competences declared in the initial teacher training, in the Pedagogy in Chemistry and Sciences of the Playa Ancha University, it is that a sample of 7 students has been selected, which in an initial stage responds to a survey (evaluated by expert judgment), which aims to clarify the students' prior concepts and beliefs regarding competencies. Subsequently, the previously completed with an interview is complemented, which allows to verify the acquisition of competences declared in the study plan. The students interviewed belong to three promotions, so they could contrast the progress of these with the curriculum of the career and their respective contribution to the profile of graduation.

According to the proposed hypothesis, where the student of older promotions, must achieve more skills, in relation to a student who is in more recent promotions, this is why the survey and the interview, take an important value for determine the consistency of achievement according to the promotion in which the student is.

## **PROBLEM FORMULATION**

Are the students of the Pedagogy in Chemistry and Sciences of the Playa Ancha University acquiring the competencies declared in the graduate profile of said university degree?

## **OVERALL OBJECTIVE**

Determine the appreciation in relation to the skills declared in the initial teacher training, in the career of Pedagogy in Chemistry and Sciences of the University of Playa Ancha.

## **SPECIFIC OBJECTIVES**

1. Evidence the main characteristics of the competences in the beliefs that the students of the career of pedagogy in chemistry and sciences.
2. Compare and contrast the competences declared in the training plan according to the characteristics of its structure.
3. Verify the achievement of the competences declared by the cycles through the opinions formulated by the students of the Pedagogy in Chemistry and Sciences career

## THEORETICAL FOUNDATION

In 2010, the Ministry of Education commissioned the development of standards for graduates of Pedagogy in Media Education, in order to provide guidance to teacher training institutions regarding those knowledge and skills essential to an effective teaching process, respecting the existing diversity of profiles, requirements, curricular meshes, training trajectories and own seal, which characterize each of said institutions. Specifically, the elaboration of professional standards for the teaching of Media Education in the areas of: Language and Communication; Mathematics; History, Geography and Social Sciences; Biology; Physical; and Chemistry. (MINEDUC, 2012).

On the other hand the University of Playa Ancha implements an innovative plan changing the teaching model, one based on competence and which was implemented in the career of pedagogy in Chemistry in 2014 this new model guides a systematic and complementary work to the curricular design processes undertaken by the UPLA in the different tools referenced from the Public Policies for the development of Higher Education in the country (MECESUP) offering specific training for demonstrable skills. This model proposes an instance of training and academic development that makes Curriculum Innovation (CI) sustainable over time and articulates with the challenges acquired by the University in terms of developing processes of excellence, curricular pertinence, appropriate training processes in temporality, articulations for the quality and equity of students who have made a formative option for the institution (performance agreements). (Arturo Pinto, 2003).

The chemistry teacher will be able to use personal scientific knowledge to describe, explain and predict natural phenomena related to chemistry, as well as to relate scientific concepts and models to solve problems related to said basic science. (Curriculum innovation, 2014)

(<http://www.upla.cl/innovacioncurricular/wp-content/uploads/2014/04/INFORME-PERFIL-QUIMICA-1.pdf>)

This innovative plan that is based on competencies, takes into account the disciplinary standards for teaching chemistry that are implemented by the Ministry of Education, MINEDUC. It immediately arises to answer the question: What is a competition? As stated by Julio Pimienta (2012) in his book the competences in university teaching: “We can understand by competence the performance or the integral performance of the subject, which implies knowledge factual or declarative, abilities, skills, attitudes and values, within an ethical context. “

Where a competency is built based on three great knowledge.

1. Know how to be (Attitudes and values).
2. Knowing how to know (factual and declarative knowledge).
3. Know how to do (Skills and skills)

The set of these three knowledge forms a competence where the student is able

to face a problem and develop it in an integral and coherent way.

## **METHODOLOGICAL FRAMEWORK.**

The research methodology is developed within a qualitative framework, where we find Taylor and Bogdan (1986) who state the following: it is one that produces descriptive data: the own words of the people, spoken or written, and the observable behavior. Following the indications of Taylor and Bogdan as a method of data collection, we applied the survey and the interview where the students of the Pedagogy in Chemistry and Sciences of the Playa Ancha University expressed their perceptions, prior concepts and appreciations according to work. performed by competences in their professional training.

In order to perform the data analysis, we resort to the Grounded Theory, which is based on the hypothesis of symbolic interactionism to understand how individuals define a phenomenon or event through their social interaction (Vivar, 2010). According to this statement, the research seeks to raise evidence regarding students and the acquisition of competences during their professional training stage. The sample corresponds to students of the University of Playa Ancha of Education Sciences, specifically of the career of Pedagogy in Chemistry and Sciences (men and women) who are currently studying from 1st to 4th year in the race, they have ages between 18 and 31 years old.

## **DATA COLLECTION**

According to López-Roldan and Fachelli (2015) the survey is a technique of collecting data through the questioning of subjects whose purpose is to systematically obtain measurements on the concepts derived from a research problem previously. built The survey elaborated considers two dimensions: a) Previous concepts of the competences and b) Conceptions of competences. For this survey a Likers scale was used, where the students declare their level of disagreement in each item or question.

In a second stage of this study, an interview is conducted, which allows the compilation of detailed information that allows the informant to orally share with the researcher what concerns a specific topic or event that happened in his life as Fontana and Frey say (2005). This interview is elaborated based on the objectives of the study, the dimension worked was the Perception of the students of the career of Pedagogy in Chemistry and Sciences regarding the competences acquired during their initial training. To inquire about the perception of the students about the acquisition of competences in the course of their academic formation, the interview is made to students of different promotions belonging to the innovated plan and therefore to the Curriculum and the corresponding curricular structure.

## VALIDITY AND RELIABILITY

The validity of the instrument is carried out through an expert judgment (Annex), where people specialized in the subject of research evaluate the content of the interview and survey, in order to demonstrate that the content is consistent with the established objectives. For this research, qualified professionals participated in the subject, who were responsible for evaluating the following criteria:

- Purpose: Why the research is done.
- Survey: The questions raised meet the objective of the instrument.
- Consistency: It is written in a coherent and neat language for students.

## RESULTS

In this section we proceed to contextualize the results from three large dimensions:

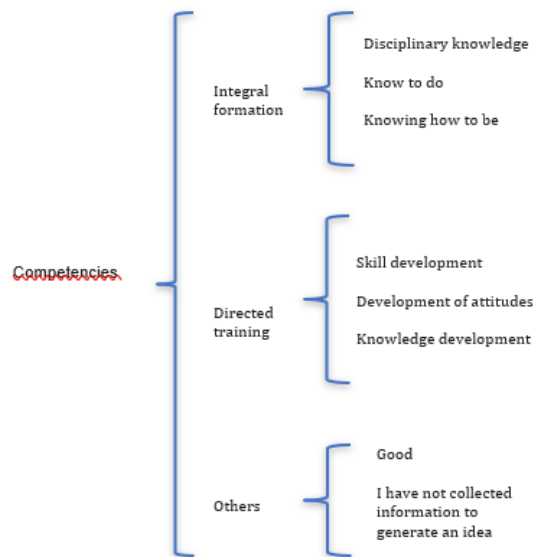
1. Previous concepts
2. Conceptions of student competencies.
3. Perceptions of competencies regarding:
  - 3.1 Graduation profile.
  - 3.2 Disciplinary training programs.

It is broken down in this way in order to expand the spectrum of analysis and thus obtain more reliable results.

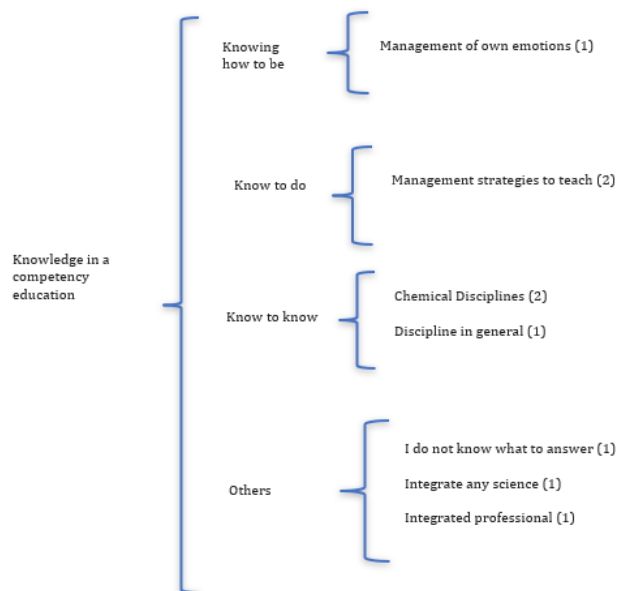
## RESULTS OF THE TEST

- Dimension “previous concepts”

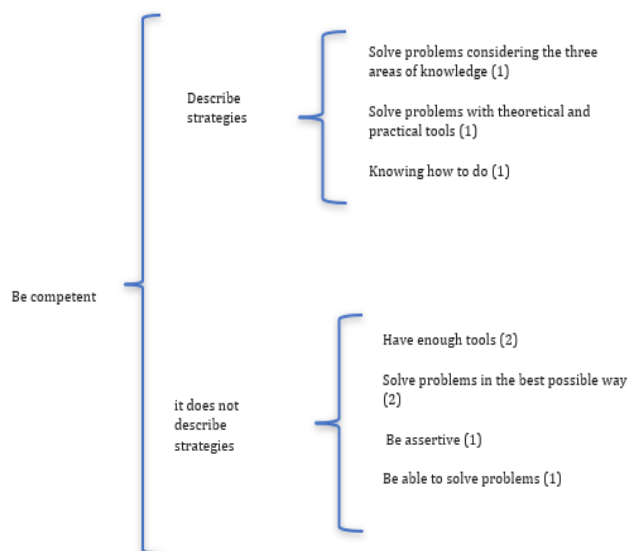
Semantic networks constructed with the answers obtained in the four open questions made in the survey in the dimension “previous concepts” of the students of the career of pedagogy in Chemistry are shown below. In each of the following images (image 1-4) the corresponding question is observed and the conceptual breakdown shown in the semantic network that was built in this first dimension of previous concepts is given to students in relation to the concept of competences.



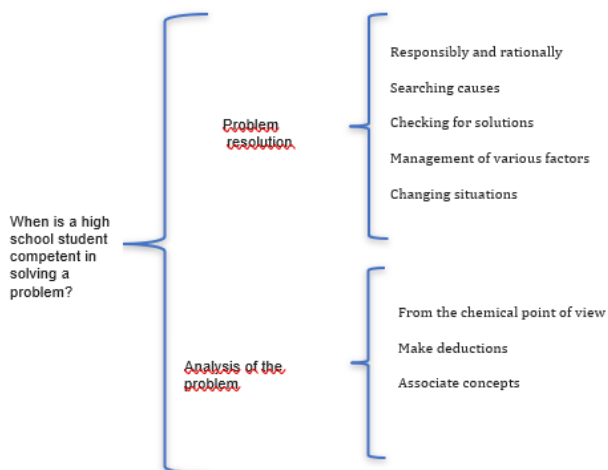
How would you define the competency-based approach?



Which one or which knowledge (s) in sciences do you integrate in a competency-based education?



When facing a real problematic situation, what does it mean for you to be competent?



When do you consider that a high school student is competent in solving a problem?

## RESULTS OF THE TEST

- Dimension “Conceptions in the competences”

The following table shows each question with the percentages in each item according to the likers scale used.

From your point of view, assessing by competencies can improve the hope of student achievement?				
Strongly disagree (0%)	Disagree (0%)	Insecure (0%)	Agree (57.1%)	Strongly agree (42.9%)
Do you think that university professors plan based on specific competences in the laboratory for a correct development of the student?				



Strongly disagree (0%)	Disagree (14.3%)	Insecure (28.6%)	Agree (42.9%)	Strongly agree (14.3%)
You think that when evaluating the performance of a student in the laboratory, the teacher is evaluating previously planned competencies and presented to the group course.				
Strongly disagree (0%)	Disagree (28.6%)	Insecure (14.3%)	Agree (42.9%)	Strongly agree (14.3%)
The evaluation of a competence in the chemistry laboratory must consider, in addition to the learning results, the assessment that the student makes of said learning.				
Strongly disagree (0%)	Disagree (0%)	Insecure (0%)	Agree (14.3%)	Strongly agree (85.7%)
The objectives and competences are complemented when evaluating experimental and theoretical learning in different subjects related to chemistry.				
Strongly disagree (0%)	Disagree (14.3%)	Insecure (0%)	Agree (57.1)	Strongly agree (28.6%)
In the laboratory practices he has had the opportunity to co-evaluate				
Strongly disagree (0%)	Disagree (57.1%)	Insecure (14.3%)	Agree (28.6%)	Strongly agree (0%)
Considers that laboratory practices are evaluated by competencies				
Strongly disagree (14.3%)	Disagree (0%)	Insecure (57.1%)	Agree (14.3%)	Strongly agree (14.3%)
In the planning of your subjects (those that you are studying or have studied) that contemplate experimental work, you consider that there is more than one way to evaluate the competences in the laboratory.				
Strongly disagree (0%)	Disagree (14.3%)	Insecure (0%)	Agree (57.1)	Strongly agree (28.6%)

Table 1. Results survey dimension “conception of competencies”

## RESULTS INTERVIEW

- **Dimension “perceptions of competences”**

This interview gathers the students’ perception of the career of pedagogy in chemistry regarding the competences acquired in their initial training and that are declared in the graduation profile, and the contribution to the achievement of this is made through the study plan that It contains the disciplinary and pedagogical training programs, focusing on this study in the disciplines. As far as the study plan of the Pedagogy in Chemistry and Sciences career is concerned, there are 21 training programs in the scientific disciplinary area. The interview was conducted taking into account the competences declared in each of these programs and that are distributed by semester in the curricular structure, the information gathered in the interview is shown below:

First semester: Structure of the subject and cellular Biology manage to develop the competence established in the study plan. While mathematics fails to generate the

declared competence as perceived by students.

Second semester: In systems biology students perceive that there is development of the competence declared in said training program, however in calculation they mention that competences are achieved, but with certain difficulties but they do not know how to answer the “why”.

Third semester: In the training plans of inorganic chemistry and teaching methodology for chemistry the students express that they fulfill the competences declared in these training programs, however the competence declared in the training plan of Mechanics (physics) is not achieved develop.

Fourth semester: During this semester, an Introduction to Carbon Chemistry, Environmental Chemistry and Wave and Electromagnetism is introduced. In these training plans, students in the 3rd and 4th year express having acquired said competences in their training, while the second-year student mentions He does not have the competences because he is studying the aforementioned training plans.

Fifth semester: the fifth semester is only taken or attended by two students who declare having acquired the competences indicated in the study plan in the training plans of reactivity and organic transformations, homogeneous and heterogeneous reactions, strategies for the restoration of the environment and topics of chemistry

Sixth semester: The two students interviewed who are in this sixth semester or are studying mention having acquired the competences, in the case of the 4th year student mentions having the three disciplinary competences established in this semester, the 3rd year student mentions having acquired two of the three competences and the third involving thermodynamics and kinetics mentioned does not show certainty in the achievements obtained in this last training program.

Seventh semester: Only one student is enrolled in the seventh semester During this research, which was mentioned or acquired competences of two of the training programs, their coordination compounds and link theory, in the change in the instrumental analysis program not have a competition that has already been presented.

## **ANALYSIS OF RESULTS**

The analysis of the results obtained in the survey is shown, which considers two dimensions: “previous concepts” and “conceptions of the competencies of the students”. In addition, the results obtained in the interview conducted with the students that considers the dimension “perceptions of competences acquired in the initial teacher training process” are discussed.

## **POLL**

- **Prior Concepts Dimension**

In order to determine the previous concepts that students bring, four open-ended questions were formulated with the conceptualization of competence and concatenate with each other. Therefore, these questions aim to answer if students have acquired the concept of competences.

“We can understand by competence the performance or integral performance of the subject” (Pimienta, 2012). As mentioned Julio Pimienta is a development of a whole student, this will include factual as well as declarative knowledge, is also concerned with the skills and abilities, and on the other hand is responsible for the behaviors, attitudes and values that the person has.

Based on this author it is possible to elucidate that the students do not understand the concept in its totality, evidence certain approximations of what is a competence, either, mentioning some knowledge or when they mention that they disagree with the objective.

On the other hand the learners fail to clarify what are the knowledge that make up a competition, they name only one or two but there is no clarity of knowledge and as Pepper mentions in his book competences in university teaching a competition consists of three knowledge :

1. Know to know
2. Know to do
3. Know to be

That at the moment of working the three together and together, they gain by forming a competence in education.

The answers to the four questions asked by the students in the dimension “previous concepts” that do not have clarity of what is a competition? And what knowledge do they compose?, they fail to build a timely response about when a person or student is competent in different problematic situations of the profession.

- **Conceptions of the Competencies.**

A competency-based curriculum provides the tools for a comprehensive education in higher education that will allow students to face different problems in the performance of the profession by giving appropriate solutions to the situation in different environments.

The evaluation is one of the most influential aspects in the students (Parcerisa, 2014). This implies that the teacher must introduce a series of changes that considers innovation is the teaching-learning process, where evaluation is a key point (Giné and Parcerisa, 2011)

In this context, “self-evaluation becomes part of the learning process and therefore component of the evaluation”. (Castillo, 2012), As mentioned by these authors, self-evaluation and hetero-evaluation are important evaluations to perform, in order to denote certain aspects not visible during the evaluation carried out by the teacher and to detect certain difficulties that are presented to students beyond the declarative

factual content.

Regarding the practical work carried out in the laboratory, the students show a positive assessment of their initial teacher training, by: More than 55% of the students state that the teachers evaluate competencies in the laboratory. 100% agree that in addition to the learning results, an assessment must be made by the student of said acquired learning. To be able to evaluate a competence, not only must contemplate the practical work (skills in the laboratory) but also, you must consider a written work and a virtual work, adapting to the new times. 85% of the students mention, in addition, that there is more than one way of evaluating competences in the laboratory, in the different branches of chemistry.

Another important part we must remember that students mention in 85% that the objectives and competences are complementary that is contrary to what Pepper mentions; 2012 “The objective is aimed at one dimension of the competition, on the other hand a competence works as a whole” This is why there are conceptual and unreliable errors with respect to questions aimed at competency-based training.

Among the answers obtained, an evaluation of training programs is observed which gives the students the opportunity to plan (based on competences) their own laboratory practices, these training programs are: Biochemistry, Cell Biology, Systems Biology. In these training programs you can verify that students perceive a greater degree of achievement in the appropriation of knowledge, and skills and therefore in the achievement of competence.

## INTERVIEW

- **Perception of acquired competences with respect to the competences declared in the graduation profile.**

The interview conducted with the students shows that the answers of the interviewees are coherent, given that the achievements in the acquisition of the disciplinary competences declared by the students is consistent with the curricular advance of each one of the respondents, that is, according to the promotion or cohort to which they belong.

The student with the highest curricular advancement, 4th year of the Pedagogy in Chemistry and Science degree, declares through the interview that he meets all the competencies stipulated in the study plan for the seventh semester he has been studying.

On the other hand, 3rd graders show a minor advance in the curriculum and therefore have not yet acquired all the competences, as an example the competition not achieved in these students during the course of this investigation is: Evaluate disciplinary knowledge for respond to emerging problems in the field of chemistry to improve teaching processes.

The 2nd year student presents a minor achievement of competence, since he is in his third semester of training the competences have not yet been acquired are: Evaluate disciplinary knowledge to respond to emerging problems in the field of chemistry to improve teaching processes ; Applies diverse methodologies to provoke the student's learning in the field of Chemistry; It evaluates the changes that the learning of Chemistry causes in the students; Guides students to discover the importance of chemistry as a basic science; Promotes the student's scientific-educational training; Ability to differentiate science from other non-scientific interpretations of reality.

## CONCLUSIONS

It is concluded from the results of the survey in the dimension "previous concepts" that the students of the career of pedagogy in chemistry and sciences do not know the concept fully or the implications that this concept can have in their professional life.

On the other hand, the competences declared in the career training plan were successfully achieved and acquired by the students interviewed, concluding that the subjects that best develop their competences are: Biochemistry, Cell Biology and Systems Biology, where They deploy as an integral being and empowering the three knowledges to form a professional that is capable of facing any difficulty in their profession. On the other hand, there are training programs that were evaluated poorly, since they do not meet the training of the competence stipulated in the declared program, these are: calculation, mathematics and instrumental analysis.

According to the curricular advance there is consistency in the acquisition of competences, this is evidenced in the analysis of the discourse given in the interview where the students who are in the initial promotion there is a smaller number of skills acquired compared to a student who is studying the last year of the training plan.

Another aspect that can be evidenced is that the training programs do not clearly show the integration of the three knowledge that is intended to be developed in a competency-based training, an aspect that is verified by the interview with the students, who mention that the development of knowing , and know-how are developed separately.

To conclude the students mostly perceive that they are acquiring the skills stipulated in the graduation profile developed through the career training plan, with some exceptions, but that it is a process of continuous improvement and growth for all participating agents.

## REFERENCES

Castillo, Gómez, Miranda (2012) **THE SELF-EVALUATION OF STUDENTS IN THE NUCLEUS EDUCATIONAL INSTITUTIONS NO. 6 OF THE CITY OF IBAGUÉ** Master's thesis.

Fontana, A., Frey, J. (2005). **The Interview, from neutral stance to political involvement**. In N. K. Denzin & S., Lincoln (Comp). *The Sage Handbook of Qualitative Research*, p.699. London, UK: Sage.

Giné, N and Parcerisa, A. (2011). **Evaluation in Secondary education**. Editorial Graó. Spain.

Government of Chile, Ministry of Education (2012) **Guiding standards for pedagogy careers in secondary education**. (Chapter 2 Chemistry p 212) LOM Ediciones LTDA.

Le Boterf, G. (2000). **Engineering of competences**. Barcelona: Management Ed.

López-Roldan and Fachelli (2015) **METHODOLOGY OF QUANTITATIVE SOCIAL RESEARCH**. Barcelona Spain, First Edition, p.8

Sandoval, J. and Márquez, M. (2007). **Analysis of Teaching and Pedagogical Practices in Schools of Medical Technology**, Nursing, Obstetrics and Childcare Advising for the Project MECESUP AUS 0209. (Technical counterpart).

Manríquez Pantoja Luis. (2012). **Evaluation by competences?**. University of Antofagasta, Directorate Department of Education. Antofagasta, Chile.

Parcerisa, A. (2014). **Experiences of continuous evaluation in the university**. Octahedron Editorial. Spain.

Parra Miranda Viviana. (2014). **DIDACTICS AND ITS IMPACT ON A COMPETENCE APPROACH**. Chile. University of Playa Ancha.

Pimienta J. (2012) **The competencies in university teaching**. Mexico pp 2-32 Editorial Pearson First edition.

Pinto Guevara Arturo, (2013). **Design and Implementation of the Curricular Innovation for the Careers of the University of Playa Ancha**. University of Playa Ancha. Valparaíso, Chile.

Safe Mario Castle. (2009). **THE EVALUATION OF LEARNING BASED ON PERFORMANCE BY COMPETENCES**. Electronic Magazine "Investigative News in Education", vol. 9, number. 2. San Pedro de Montes de Oca, Costa Rica

Taylor and Bogdan (1986) **Introduction to qualitative research methods**. Paidós Basica p.20 Second Edition.

Vivar C. (2010) **The Grounded Theory as a Methodology of Qualitative Research in Nursing**, Grounded theory as a qualitative research methodology in nursing. Scielo Magazine.

## **SOBRE A ORGANIZADORA**

**MICHÉLLE BARRETO JUSTUS** Mestre em educação pela Universidade Estadual de Ponta Grossa (UEPG) em 2015, especialista em Gestão Escolar pelo Instituto Tecnológico de Desenvolvimento Educacional (ITDE) em 2009, pedagoga graduada pela UEPG em 2002 e graduada em Psicologia pela Faculdade Sant'Anna (IESSA) em 2010. Autora do livro “Formação de Professores em Semanas Pedagógicas: A formação continuada entre duas lógicas”. Atua como pedagoga na rede estadual de ensino.

Agência Brasileira do ISBN  
ISBN 978-85-7247-440-5



9 788572 474405