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## DOCTORAL (PhD) DISSERTATION

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Educating the reflective professional in teacher education: professional learning in teaching and in other professions.

Budapest, 2019



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# EÖTVÖS LORÁND UNIVERSITY

## FACULTY OF EDUCATION AND PSYCHOLOGY

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**Doctoral dissertation in education**

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Educating the reflective professional in teacher education: professional learning in teaching and in other professions

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## **Abstract**

The aim of this dissertation is to promote a better understanding of the way professionals learn while performing their daily work activities and what practices performed can be extracted from such activities in order to be implemented in the teaching profession.

This dissertation takes up “critical realism” as its underlying philosophy and sees professional learning as an unintended result of the interaction between three major complex systems namely: the organization, the community and the individual. The division into these three systems became necessary in order to find a reasonable way of “comparing” professions bearing different goals and nature. Data gathering involved semi-structured interviews subsequently coded with N-Vivo and Quirkos software.

This study followed the work of 25 professionals allocated in five different fields: a) Architecture, b) Information Technology, c) Human Resources, d) Educational Researchers, e) Vocational Education and Training (VET) Teachers. All of the participants in this study were working in Austria, Czech Republic and Hungary despite coming from different nations such as Brazil, Bhutan, Czech Republic, Hungary, The Netherlands, Serbia, Slovakia, Peru and Poland. The peculiarity of this sample was purposely organized since nowadays there is an undeniable demographic change in the labor market picturing high levels of mobility not just within the European Union but also outside of it. The research process mostly looked into the day-to-day professional challenges VET teachers experience in their workplace taking up transferable solutions mediated from other professions.

The results identified various practices that could be extrapolated to the VET teaching professional in several ways. For example, the importance of cooperation among professionals of different areas identified in the profession of Architecture, the openness to new knowledge as seen in the HR area, communal problem solving as detected in the IT profession and the mediating role of managers between the employee and the working knowledge in the educational research field. Therefore, it becomes quite evident that the teaching profession needs to look farther beyond its usual collaborators and try looking for solutions to challenges stemming from different fields in a trans-professional fashion.

Finally, this study leaves the door open for a deeper conversation on the effectiveness of teachers’ adoption of practices from other professional areas.

## **Keywords**

Professional learning, workplace learning, communities of practice, complexity theory

## **Statement of the Problem**

In the realm of professional learning, theoretical frameworks focus on either the role of the individual, the community or the organization. However, an interactionist approach accounts for individual differences, such as general cognitive ability, and social relationships, such as the dynamic between teacher and student, within the environment, community or organization. For example, organizational science has shown that climate within the workplace is important because of the presence of conflict or cooperation, which can lead to organizational success or failure. Within individual learning, organizational learning characteristics and leadership style can also influence employee learning and development. Consequently, in developing a framework for understanding professional learning, it is important to consider how the individual is shaped by both intrinsic motivation factors, such as self-determination and self-efficacy, and extrinsic motivation factors, such as organizational climate and leadership style, which influences workplace policies and practices. This study makes a contribution through focusing on macro, meso and micro factors as a part of a complex system; previous research has not provided a broad interactional approach within professional learning.

It is important to adopt a broad perspective in examining the complex phenomenon of professional learning. Although the micro-context (individual characteristics of teachers or programs) is relevant, it is important to include meso-level and macro-level factors; including meso (institutional) and macro (school system) contexts accounts for the complexity of professional learning (Opfer & Pedder, 2011, p. 378). This research provides a theoretical model that includes, micro, meso and macro factors. This model is important for professional learning research, across a wide range of professions.

This thesis has two objectives. First, the thesis applies theory and practice from other professions and extrapolates the findings to challenges faced in the teaching profession. Second, the thesis draws on organizational science and examines the professional learning phenomenon from the perspective of complexity theory.

as the social, legislative and economic climate within each field, meaning workplace dynamics and the characteristics of the organization, product industry and individual factors, such as personality and motivational characteristics.

Professional learning itself has conventionally been treated as an individual and person-centered process, related to personal experience as well as the acquisition of disciplinary and problem-solving competencies (Fenwick, 2012, p. 4). The problem with these person-centered views is that the complexity of the world around the professional is either avoided or bypassed missing out the social interactions of the individual within the professional environment. To expand this individualistic ‘acquisitional’ metaphor, it becomes important to adopt an interactionist, sociocultural perspective that incorporates the individual and the role of the environment, rules, tools and social relations that surround the professional.

This dissertation considers the complexity of the workplace, its components, social interactions, and the context in order to assess the factors that support professional learning.

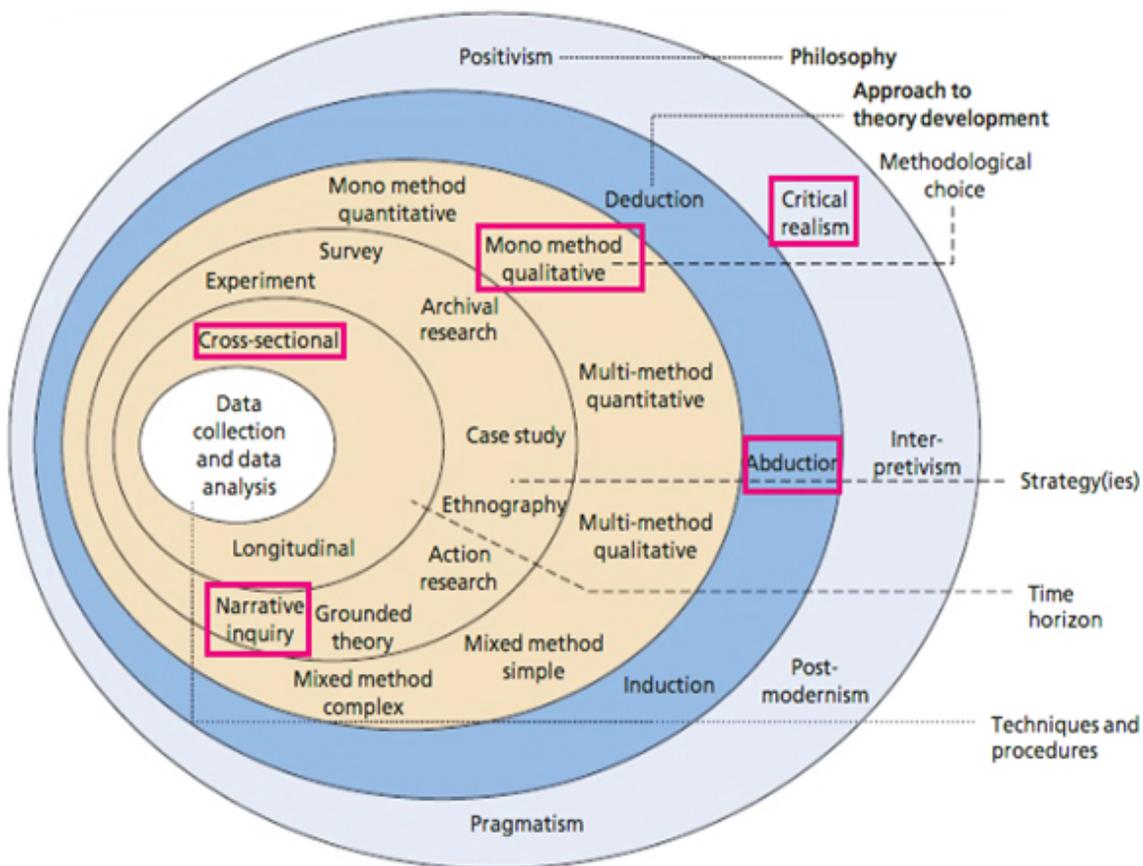
### **Importance of Dissertation Research**

The outcomes of this study aimed to identify creative ways of approaching teachers’ professional learning from other professions. The thesis draws on research from social scienceto make a contribution to the literature on professional learning. The significance of this study is described in terms ofadvances in theory and practice.

### **3. Key Concepts and Theory**

This section provides thorough information about the methodological underpinnings of this dissertation. From the philosophical framework, ontology and epistemology basis, to the data collection and analysis

Figure 1. Research “onion” illustrating this dissertation



Source: 2015 , Philip Lewis and Adrian Thornhill

Every study starts with a philosophical research framework which can be defined as “a system of beliefs and assumptions about the development of knowledge (Saunders, 2015, p.24).

It is important to note that at every stage of any serious study, the researcher makes a number of decisions and assumptions that affect the entirety of the work from choices of research subject and its subsequent design, to interpretation of the findings - assumptions regarding the available knowledge base, a perception of ‘reality’ and the questions arising from that perception regarding events or phenomena to be studied, applicable methods appropriate to test the said questions, all of which are influenced by the researcher’s own set of beliefs and value systems.

An apt analogy to describe this intersection of knowledge and beliefs is cited as below:

When deciding what to cook, there are certain questions to be borne in mind, including: who the meal is for; what food is available; and what cooking utensils and equipment one has. In this sense,, our end product, the meal, depends upon a range of factors over which we have no control (what’s available); a range of factors over which we have some control (depending on our personal choice);

and a range of belief and preferences that reduce our choices (Dillon & Wals, 2006, p.549).

**Thus, the development of a study concerning the exploration of professional learning as part of a complex system - in other words, our ‘meal’, in which issues of power and rhetorical peculiarities play a role in the emerging context needs to clearly establish its ontological perceptions and epistemological stances in order to develop appropriate research paradigms and methods for data gathering, analysis and interpretation (Bracken, 2010).**

**Among these, ontological perspectives examine what we are dealing with “(the what) - the nature of reality”, epistemology refers to the methods we use, or “how we make knowledge (the how)”, and axiology refers to “ethical considerations and our own philosophical viewpoints (the why)” (Dillon & Wals, 2006, p.550).**

**Practical implications arise through a deeper awareness of the ontological substructures informing their studies. Researchers find themselves better positioned to interactively reflect upon and define the best ways to engage in their research projects. An understanding of the epistemology of the undertaken study then informs the researcher as well as others, about the philosophy underlining the method of approach to data and its analysis, the scope of the methodological philosophy in its ability to reveal accurate, non-generalized inferences, and its limitations. Axiology plays an indubitably important part in outlining the motives of the researcher. No decisions can be made in the absence of a value system. From its very nature, when a researcher decides to undertake one line of study over another, that agency of choice exercised by the researcher is informed in turn, by their value system assigning greater merit to the chosen subject matter over the other, equally available, aside from pressing questions. Axiology helps to inform other researchers seeking to either replicate a study or continue delving into any given subject matter of the value systems espoused within the working philosophies of a study by its researcher.**

### **Research Philosophy**

**This thesis’s philosophical foundations are grounded in critical realism. This philosophy considers that although reality is not fixed nor immediately accessible, there are some aspects of reality that exist beyond the knowledge or conceptions we have of**

them; one key aspect of reality is the causal mechanisms that produce empirically observable events (Cochran-Smith, Ell, Ludlow, Grudnoff, & Aitken, 2014, p.15).

From a theoretical perspective, this study sees professional learning as part of a complex system, and reality as being non-linear and adaptable to changes created by the interactions between the individual and the environment meaning people such as the different members of the organization, and contextual factors such as the workplace structure and characteristics.

Studying professional learning through the critical realism philosophy means that one focus of the thesis lies on explaining what we see and experience, in terms of the underlying structures of reality that shape observable events (Saunders, Lewis, Thornhill, & Bristow, 2015, p.138)

**Critical Realism.**

At its philosophical roots, the underpinnings of this thesis are grounded in the realm of critical realism. While the philosophy itself is difficult to pin down in absolute terms, having been expounded upon and debated in discourse rather heavily since its initial conceptualization by Roy Bhaskar, the tenets of this philosophy can be understood through its 'haves and have nots'. In order to find their philosophical perspective on a subject, critical realists combine 'ontological realism', 'epistemological relativism', and 'judgmental rationality'.

Ontology	Epistemology	Axiology	Typical Methods
<b>Critical Realism</b>			
Stratified/layered (the empirical, the actual and the real) External, independent, Intransient Objective structures Causal mechanisms	Epistemological relativism Knowledge historically situated and transient Facts are social constructions Historical causal explanation as contribution	Value-laden research Researcher acknowledges bias by world views, cultural experience and upbringing Research tries to minimize bias and errors Researcher is as objective as possible	Retroductive, in-depth historically situated analysis of pre-existing structures and emerging agency. Range of methods and data types to fit subject matter

*Source: 2015 Mark Saunders, Philip Lewis and Adrian Thornhill*

**“Ontology logically precedes epistemology which logically precedes methodology” (Hay, as cited in Grix, 2002, p.178).**

[Ontological realism] implies that there exists a reality which is stratified, differentiated, structured, and changing. [Epistemological relativism] tells us that our knowledge about this reality is always fallible but, as [judgmental rationality] suggests, there are some theoretical and methodological tools we can use in order to discriminate among theories regarding their ability to inform us about external reality (Danermark et al., as cited in Cochran-Smith et al., 2014, p.109).

As pointed out by Maxwell, critical realists shun the perspective of ‘naïve realism’ which dictates that our perception of reality directly represents its objective nature, while also rejecting radical postmodernist perspectives that hold to the belief that reality does not exist apart from our perceptions and constructions of it (as cited in *ibid.*).

In doing so, while critical realism holds that there exists a reality independent of human consciousness, that reality is neither fixed nor empirically accessible. Instead, critical realists approach the world as being layered or stratified into different domains of reality.

A directly observable pattern of behaviour (the empirical domain) can be explained in a closed experimental setting by investigating linear causal relationships between different variables (the actual domain). Quantitative researchers frequently operate in this domain. However, we might also wish to know something about how this pattern of behaviour is produced by a causal power, or causal mechanism, not immediately apparent at the level of appearances and which can only be fully explored in open systems (the real domain) (Bhaskar, as cited in Roberts, 2014, p.3).

Critical realism thus, adopts a more qualitative approach to studying causal relationships and rejects the idea that empiricist knowledge borne by quantitative methods is an accurate representation of the complexities of reality, insofar as the structure of reality can be accessed and understood. Instead, it espouses an approach wherein causal links may not be generalized, simplified, or in any way be stripped down of their participant components, so that the tangled nature of feedback loops in any given system under study may remain intact - and thus may present a rather ‘rich’ and meaningful understanding of that system in practical terms. Furthermore, critical

realism embraces the possibility that any knowledge generated may be fallible, since the complexity of the world and its underpinning social systems may lead to wrong or misleading inferences, and so affirms that the job of social investigators is to keep studying causal mechanisms and their relationship in different research contexts (Benton and Craib, as cited in Roberts, 2014).

### **Epistemology.**

Epistemology is the philosophical aspect of the research dealing with the theory of knowledge. Specifically, it applies itself to the methods and “possible ways of gaining knowledge of social reality, whatever it is understood to be. In short, claims about how what is assumed to exist can be known” (Blaikie, as cited in Grix, 2002, p.177). If ontology informs the nature of reality accepted within a study - in other terms, what a researcher thinks can be studied within reality, insofar as an understanding of reality can be constructed - and methodology informs the researcher on how to go about acquiring the information needed for that study, epistemology dictates the researcher’s thoughts on what can possibly be known even through study of a particular aspect of reality. In the case of this study, the epistemological philosophy of the research undertaken is Epistemological Relativism informed by complexity theory.

Epistemic relativism is the position that knowledge is valid only relatively to a specific context, society, culture or individual. The discussion about epistemic relativism is one of the most fundamental discussions in epistemology concerning our understanding of notions such as 'justification' and 'good reason'. (Seidel 2011)

### **Axiology.**

No social system can truly exist without values and systems of belief affecting it rather significantly at the individual level. In the words of Hill, there are no value-free sociologies (1984, p.66). So, too can no study of social systems be undertaken without the researcher’s own experiences and personal philosophy affecting a plethora of decisions from the choice of subject matter to the treatment of the sample participants. Hill upholds the belief that not all knowledge-producing systems are equally suited for every manner of social research and that responsible axiological allegiance demands that researchers seek axiologically-compatible knowledge producing systems suited to the goals of their project as well as demonstrate through their analysis and study that the project embodies the highest axiological principles (ibid., p.67). Thus, in this segment, I hope to not only outline my own driving motives behind this study, but also the axiological compatibility of my chosen epistemological philosophy.

In my case, having had professional experiences where non-linear barriers to information arising from the socio-economic context related to my workplace informing the actions of other key actors involved in the space of my organizational learning - I feel I understand some aspects of the non-objective nature of the various individual components of learning systems quite intimately. As such, it has long been part of my personal belief that every aspect of a learning system - whether through formal and non-formal education, knowledge-sharing within an organization, development of skill through communities of practice, or other informal activities - is informed and affected by how an individual within that system reflects upon, processes and internalizes information.

Using a critical realistic approach through the lens of complexity theory on one hand came quite naturally to me when I needed to ascertain my philosophical standpoint on study of learning systems through the lens of social sciences. Primarily, critical realism as a philosophical construct was intended to be used to not just study social systems and their intricacies, but also to provide a critique on the various ideas upholding the numerous systems that create our society (Cochran-Smith et al. 2014, p.110).

Examining the efficacy or otherwise of learning systems in the absence of personal beliefs and motives driving various actors leads to an 'ideal' understanding of systems, but not a 'real' or practical one. As affirmed by Byrne, and Reed and Harvey, approaching critical realism through the lens of complexity theory provides a unique advantage to a researcher - it allows for "a way to relate macro and micro issues without being reductionist and a way to describe the agency-structure relationship that accounts for human agency by acknowledging that human beings may have the capacity to initiate certain causal sequences" (ibid., p.111).

This attempt to merge my personal philosophy with the research framework was also why I chose to use interviews as a method of data collection from my sample participants. As Berg (1989) puts it, qualitative interviews can be described as a conversation with a purpose (p.13). Such a technique would allow participants to open up and talk more freely around emotional topics, allowing greater insight into how people felt and thought about their systems outside of objective facts about their experience.

Finally, approaching the methodology in this study in such a fashion as to be able to study relationships and non-linear causal links was not just a decision taken out of my wish to also gauge the impact of various social dynamics and inequalities affecting the output of this complex system of learning. It also allowed me to standardize and compare data affecting systems of learning in otherwise incomparable careers.

### **Research approach**

Abduction is the major research approach used in this dissertation. A major limitation in the philosophical approach underpinning this study is that any existing body of work in this field which may have dealt with similar subject matter have rarely, if ever, done so through the lens of complexity theory. While critical realism and complexity theory are both quite intellectually complementary to the study of a system with as many moving parts as organizational learning - most existing work revolving around it has usually been framed around specific case studies applicable to highly localized contexts. Since the purpose of this study on the other hand is to uncover causal links which may be tested and applied across professions - a different approach to research and analysis was required outside the usual methods of induction and deduction utilized in the field of qualitative analysis.

To that end, this researcher chose retroduction, or abduction, as the means to approach the research data and analytical exercises. This process has been lauded by subsets of the research community as a knowledge-extending means of inferencing, categorically distinct from the normal types of logical conclusion listed in the previous paragraph (Peirce, as cited in Reichertz, 2004). However, in order to understand the approach of abduction, it becomes necessary to understand deduction and qualitative induction.

Deduction in an intellectual process wherein the data analysis starts from a previously known rule generally considered as fact. The analysis then moves from this acceptance of the general rule as fact to finding the contexts supporting this rule in the data. As such, it starts by accepting a known inference, then looks for the markers supporting that inference within the data of an individual case. If the markers for said context are visible in the case, then that case is believed to fit the general rule initially accepted as fact.

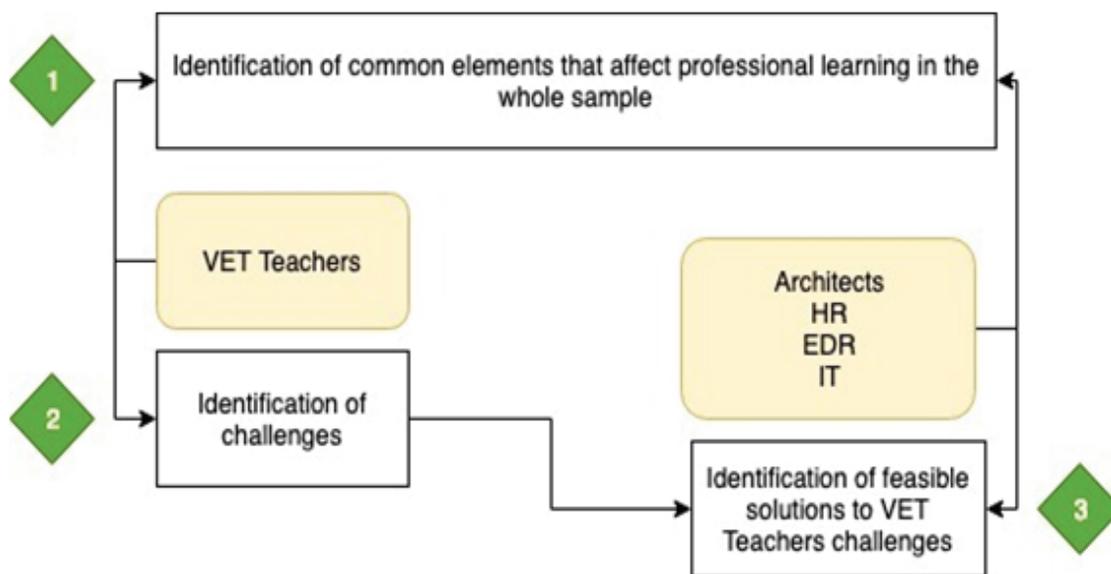
loops at both the intra-component and inter-component level are lost. Although inferences are possible when treating complex systems as complicated systems, such inferences can be misleading in the absence of any understanding of the dynamic interactions at the system level.

Consequently, complexity science provides a lens for analyzing dynamic social phenomena resulting from intentional and emergent processes (Lichtenstein, 1995). This methodological approach is appropriate for a study based in critical realism. A qualitative approach provides an overview of an active social system, while incorporating nuances that influence players within the system to understand how the system and the individual components influence the nature and actions of each other in an holistic fashion.

### Research plan

The diagram below represents the layers of analysis entrenched within this study:

*Figure 2. Data collection plan*



### Research Methods

#### Participant Sampling Criteria & Recruitment

The study participants were highly-skilled professionals, whose work involves knowledge creation, as well as symbolic-analytical activities (Margaryan, Milligan and Littlejohn, 2013, p.1). The sample was drawn from five different key industries: Architects (A), Educational researchers (EDR), Vocational Education and Training (VET) teaching, information technology engineers (IT), Human Resources (HR). These

industries were selected as a representative survey of the primary professional groups, defined by the International Standard Classification of Occupations (ISCO 8).

Each of the industries is classified as level 4, as assessed by the standards of ISCO 8. Typically, occupations rated as level 4 require higher education qualifications, and complex problem-solving skills. Level 4 occupations also feature duties related to decision making and creativity, both of which are grounded in theoretical and factual knowledge (ILO, 2007, p.13). Finally, knowledge creation and symbolic-analytical activities are also involved in a level 4 classification (Margaryan, Milligan and Littlejohn, 2013, p.1). Given the complex characteristics and tasks connected with level 4 professions, these occupations provide meaningful elements of analysis. Such elements could include involvement in communities of practice, higher levels of reflection, as well as leadership opportunities.

The complete criteria for participant selection were:

1. International Standard Classification of Occupations (ISCO 8)
2. Hard and soft sciences classification (Postareff, 2007).
3. Signature pedagogies (Shulman, 2005)
4. Appropriateness to the study
5. At least two years of experience in the work they are performing
6. Accessibility and convenience

The study sample was drawn from European countries, yet both EU and non-EU nationals working within European nations were included for study to preserve fidelity with the nature of contemporary real-world complex organizational systems. For example, this study was conducted mainly in Hungary, but the participants were professionals residing in other EU countries (i.e. Czech Republic, Slovakia, etc.)

The participants were recruited through the snowball sampling method, through future participants referred to the researcher by current and past participants. This method of recruitment is well-suited for this study. Snowball sampling relies on the dynamics of natural and social organic networks (Noy, 2008, p.329). Social networks play an important role in knowledge sharing both at an intra-system level as well as between distinct and separate organizational systems. Social networks eliminate much uncertainty regarding knowledge accuracy, since the credibility of the individual(s) imparting information to others in the system is already established within the group. Shared norms within a social network provide sufficient levels of trust to ensure that the

outcomes of knowledge and skill sharing were fair with respect to all parties involved within that system of learning (Liebeskind, Oliver, Zucker & Brewer, 1994).

Given the importance of these social interactions, snowball sampling is selected since the purpose of the thesis is to explore the unique nuances that affect the learning experiences of individuals within a complex system.

*Table 2. Demographic information of the sample*

Table 5. Demographic information of the sample	
Females	10
Males	15
Nationalities	9 Brazil, Bhutan, Czech Republic, Hungary, The Netherlands, Serbia, Slovakia, Peru, Poland
Participant countries	3 Austria, Czech Republic, Hungary
Minimum years of experience	3
Maximum years of experience	40
Median years of experience	9
Minimum number of jobs in the field	1
Maximum number of jobs in the field	18* <sup>1</sup>

*Source: Researcher*

### **Nature of Data & Collection Methods For Thesis**

Interviews provide a direct method of gathering information pertaining to the research objectives, to test experimental hypotheses, to explain and identify factors and relationships, and to explore unexpected results (Kerlinger, 1970 as cited in Cohen, Manion and Francis, 2007, p. 351). In this study, interviews were identified as the best approach to collection of primary data since they allowed for analysis of relationships and interactions within a complex environment.

### **Data collection protocol.**

The interviews were mainly conducted face-to-face and participants completed the consent form before the start of the interview. When there were logistical constraints, virtual interviews (skype, hangouts, etc.) were conducted. In all interview formats, a voice recorder was used or written notes were taken.

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Including freelancing jobs in certain careers

## **General Procedure for Content Analysis**

In this study, an analysis of interviews with 25 individuals from five professions was conducted. The selection of more than one profession gives the researcher the opportunity to delineate the variation of elements and circumstances enabling professional learning within different professions.

An analysis of the interview transcriptions was conducted using the inductive content analysis approach, which includes: data reduction, grouping and conceptualization of data (Patton, 1990; Postareff, 2007; Flick, 2014).

In addition, abductive reasoning was applied to examine whether additional contextual details uncovered through the interviews reveal hypothetical causal relationships for future research. The generalizations uncovered through inductive reasoning act as a method to uncover innovations or novel practices for the field of teaching.

## **Analysis procedure**

**Transcription.** Following the interviews, the researcher created transcripts of audio recordings taken during the interviews. The interviews were typed into text format, and the recordings were destroyed to maintain confidentiality. The textual information was transcribed into a consistent format to regularize the process of coding across all data input.

**Coding.** In this study, coding of the transcripts to recognize and compile thematic categories was performed by the researcher. A primary manual coding of the data was performed by the researcher to gain familiarity with the information. A secondary coding set was generated through Quirkos and NVivo qualitative analysis software programs. These tools provided a computerized breakdown of the data into thematic sets thus avoiding researcher bias. By running the primary data through multiple queries, this tool enables a clear understanding of emergent thematic categories through groupings of similar word usages in responses. In addition, the researcher added contextual primary data gathered during interviews as memoranda to the thematic categorizations to ensure that the nuanced relationships being developed through the textual breakdown provided deep insights.

An additional researcher coded a subset of the total data sample in order to provide objective verification of the coding undertaken by the researcher. The secondary coder's work was utilized to evaluate Cohen's Kappa - the value for agreement between raters of data - to ascertain the utility and scientific value of the

**Table 2. Example of initial coding framework**

Table 5. An example of an initial coding framework	
Interview transcript	Initial coding framework
<p>Interviewer: What do you mean by working culture and environment ?</p> <hr/> <p>-The company culture is decisive. That is responsible for the quality of the colleagues and for the motivation. Whether you can identify yourself with the team, the project and the company.</p> <p>-So (from my last job) this is a big difference because before I knew there was knowledge that I cannot reach anywhere and I needed to ask. And I didn't know what (type of) knowledge and where is not. Here I know that everything is shared, everything is somewhere published so I can just access it... So it's always a very equal (knowledge sharing) position for everyone.</p> <div style="background-color: #ccc; padding: 5px; margin: 10px 0;"> <p>Interviewer: What about the environment?</p> </div> <p>Professional: I get accepted by the colleagues, which is the key for efficient co-working.... Whether you can identify yourself with the team, the project and the company</p> <p>-to share your IT skills is important, that your colleagues accept you and appreciate you as an expert</p> <p>-The personal qualities of the colleagues and your good relation to them.</p>	<hr/> <p>Open culture Institutional Knowledge sharing</p> <hr/> <p>Social recognition Relationships</p>

**Source: Researcher**

**Objective verification for categorization.** To provide an objective verification of the various categories coded, the interview analysis and categorization was inspected by both supervisors of the thesis, as well as critical colleagues, and the categorizations were corrected and revised to the extent that it was deemed necessary.

Table 3. Example of final coding framework after reduction of categories in the initial coding framework

Table 6. An example of final coding framework after reduction of categories in the initial coding framework	
Final coding framework	Initial coding framework
1. Knowledge sharing <hr/> Attractors  <hr/> Hindrances	<hr/> Open culture Open communication Positive feedback Social recognition Relationships Technical experience Self-confidence <hr/> Time Lack of records Power-distance Social features Uncovered knowledge Isolation Confidentiality Lack of freedom Bureaucracy

Source: Researcher

**Thematic analysis.** Once the open coding, secondary coding, and objective verification of categorization was concluded, the researcher compiled and analyzed the data to answer the two major research questions. Inductive processes were used to break the data into thematic categories. To analyse the data, both inductive and abductive processes were used. The generalized inferences available through inductive processes served provided insight into each participant's relationship with their organizational learning systems. Abductive processes were used by testing theories through N-Vivo and Quirkos.

## **2. Research Results**

The results are described below by answering the research questions.

### **1.1 What challenges exist on the VET daily practice?**

In order to find the challenges present in the VET teaching practice, a coding process of the five interviews was done. Some challenges related to the financial means of the workplace arise, also challenges related to peer collaboration and leadership were the most pressing ones. However, the main challenge found in the vocational education and training profession is:

VET 1. Lack of preparation from the leader to guide and to delegate

### **1.2 What kind of solutions exist in other professions to answer to these challenges?**

In order to identify plausible solutions for the challenges existing in the profession of teaching, an analysis of how the learning process takes place in the different professions was done. The following professional approaches to learning were identified:

#### **Architecture (ARC)**

In the Architecture profession three main characteristics were identified:

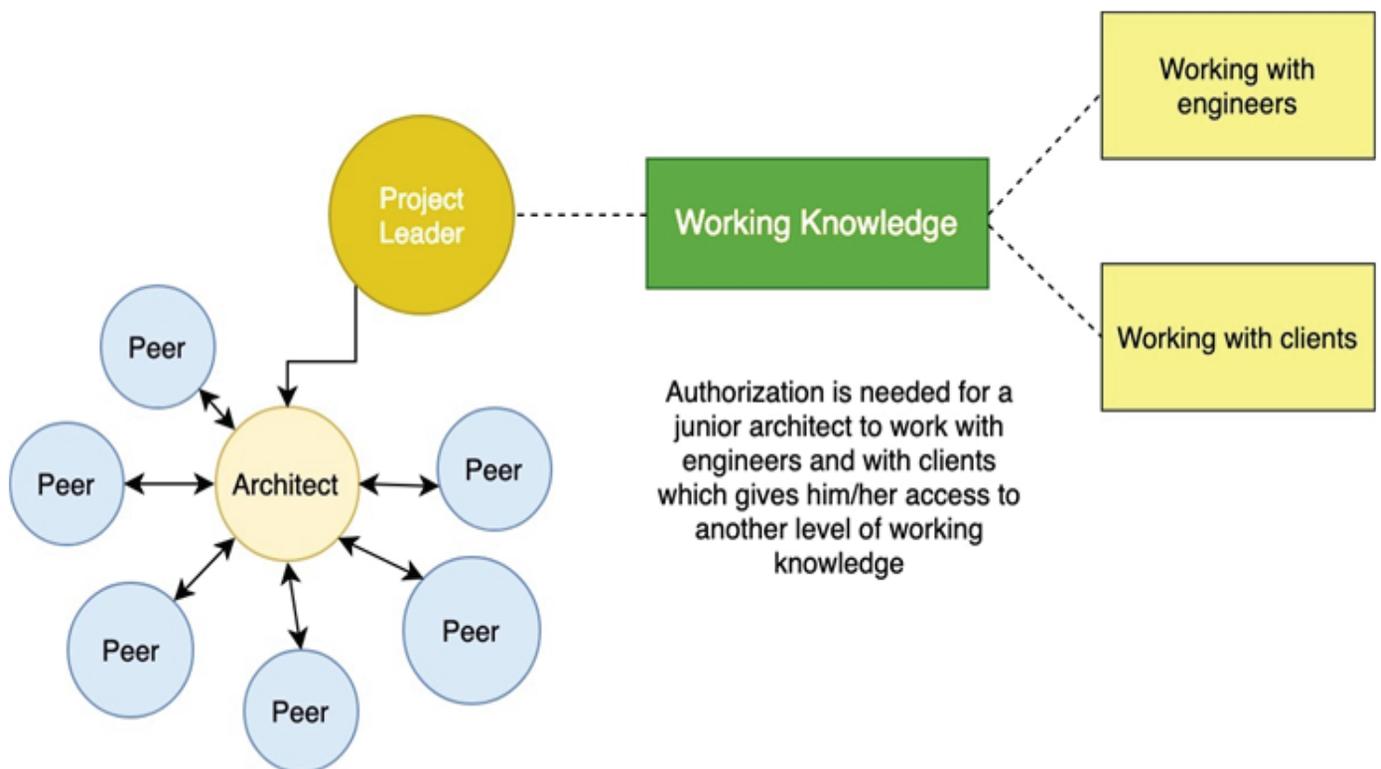
**A1. The Mediating role of the project manager between the employee and working knowledge needed to perform work related activities**

Although the Architecture profession has a horizontal structure of the community in which communication was open, the interviewees expressed that they had the chief architect or boss as their main source of knowledge. It is important to note that architects share their leadership so the lead architect in one project may, not be the leader in a future project.

**A2. Cooperating and learning from other professionals that work in the same project**

This point is particularly interesting since architects are aware of the importance of cooperating with other professionals, for instance, they openly look for the opportunity to work with them and learn from them, however, it is important to note that this opportunity is mainly open for senior architects. Also, the level of communication between an architect and an engineer working in the same project depends in several cases on the architect in chief who, may very well obstruct the communication.

*Figure 3. Architects learning dynamics regarding leadership involvement*



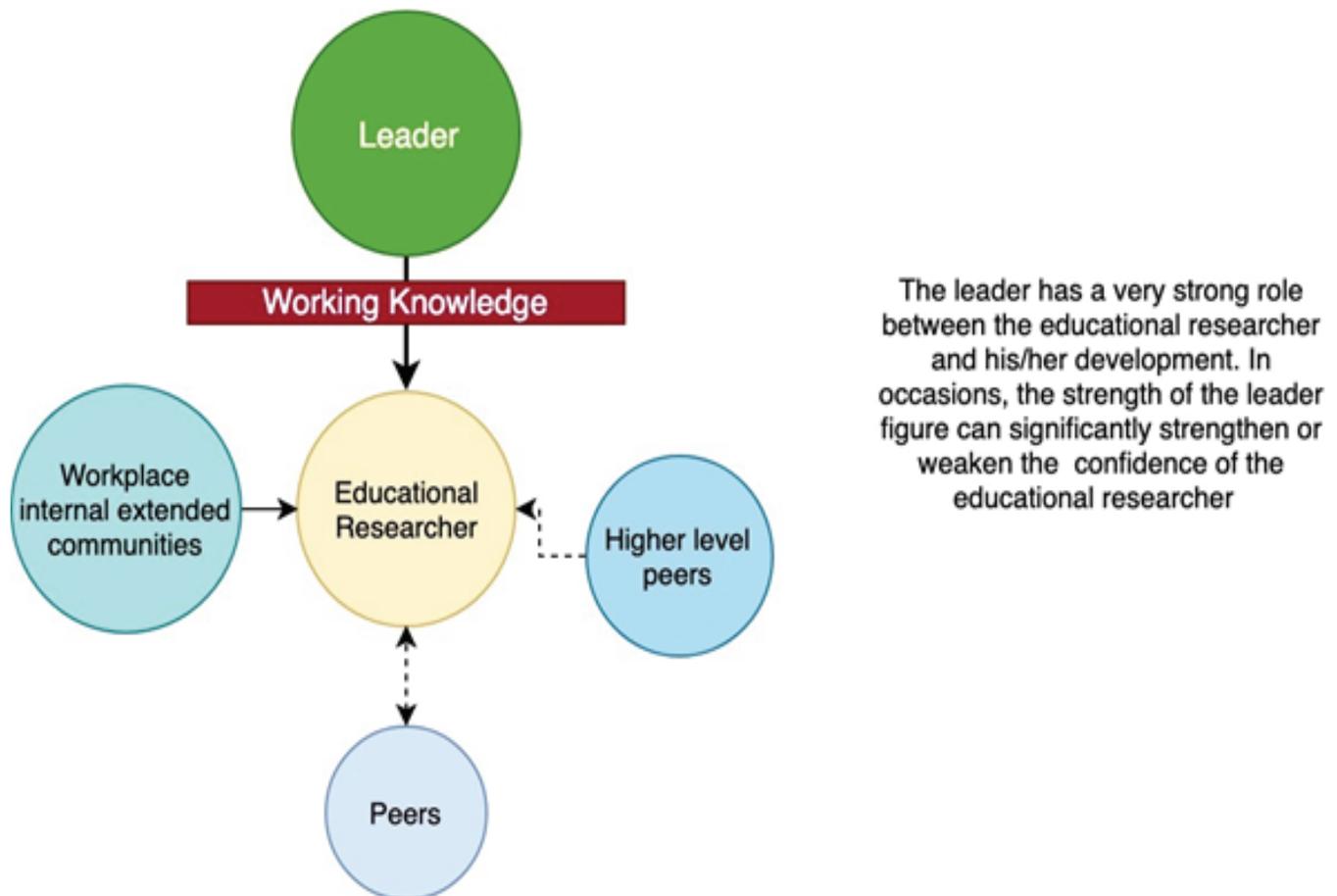
*Source: Researcher*

**Educational Researchers (EDR)**

EDR. 1 Strong relationship with the leadership figure

Educational researchers seem to have a strong relationship with the leadership figure in terms of knowledge acquisition, however this can be either a positive or a negative attribute as in case the relationship is not better than ideal, it may create a negative effect on the researcher.

Figure4. Educational researchers learning dynamics regarding leadership involvement



The leader has a very strong role between the educational researcher and his/her development. In occasions, the strength of the leader figure can significantly strengthen or weaken the confidence of the educational researcher

Source: Researcher

**Human Resources (HR)**

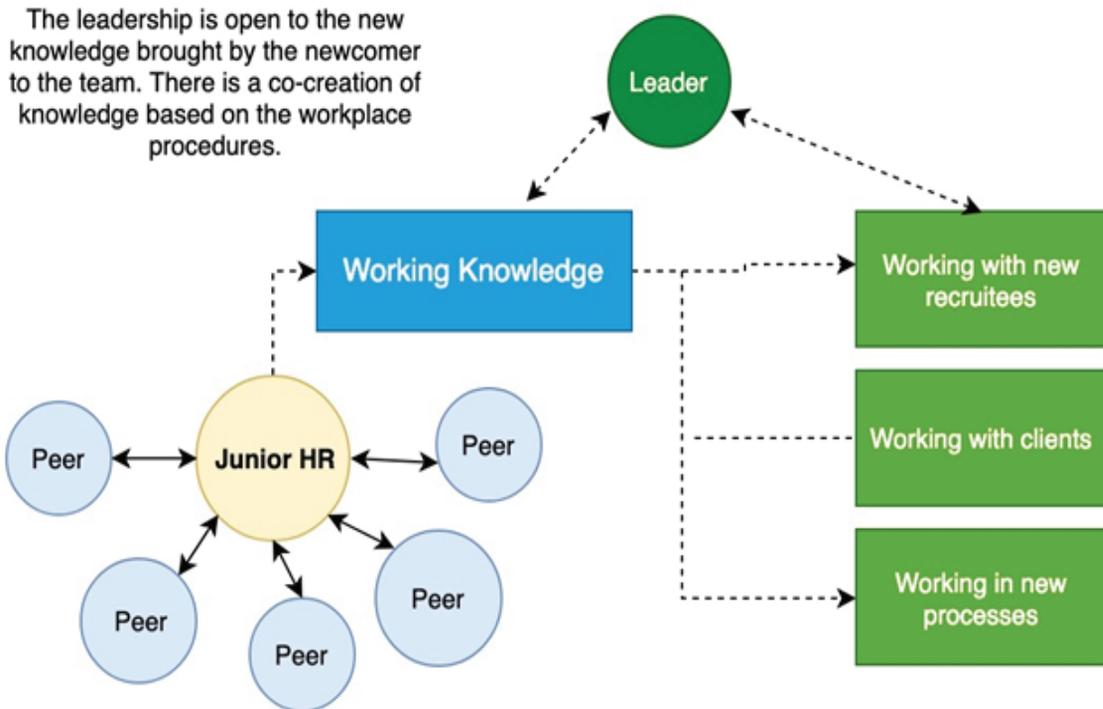
**HR1. Openness to new knowledge (group).**

Open to receive feedback not just regarding recruitment but also concerning what is missing in the entire HR department processes as well as the newcomers’ specific roles:

**HR 2. Delegation.**

Delegating important activities to new people in the position:

Figure 5. HR officers learning dynamics regarding leadership involvement



**Information and Technology (IT)**

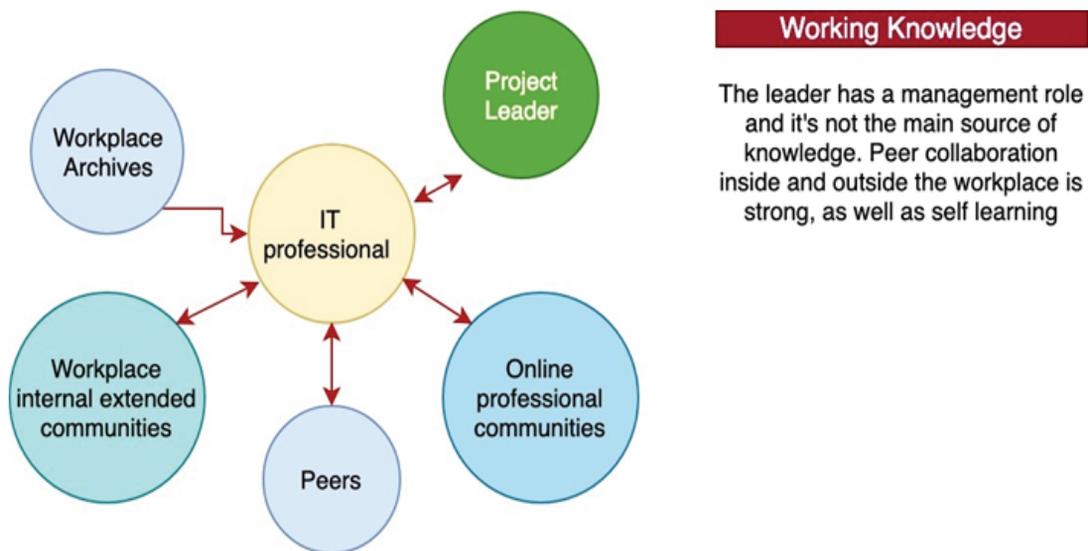
**IT1. Continuous sharing online and offline.**

The IT individuals interviewed for this study had a very strong views about knowledge sharing:

**IT2. Continuous learning**

There is a sense of need of constant learning and actualization of knowledge between the members of the sample interviewed for this thesis:

Figure6. IT professionals learning dynamics regarding leadership involvement



Source: Researcher

### **1.3 How can such processes become adequate in order to be adapted as innovations to the teaching profession?**

In order to answer this question, it is necessary to check how important the elements identified in the VET profession are pertinent to other professions, being these elements: leadership and introductory systems. In the following lines three elements are identified for the entire sample:

- Features of the workplace that support professional learning
- Impact of the participation on communities of practice on individual professional learning
- Impact of the individual professional learning in the communities of practice

At the end of this chapter it will be shown that:

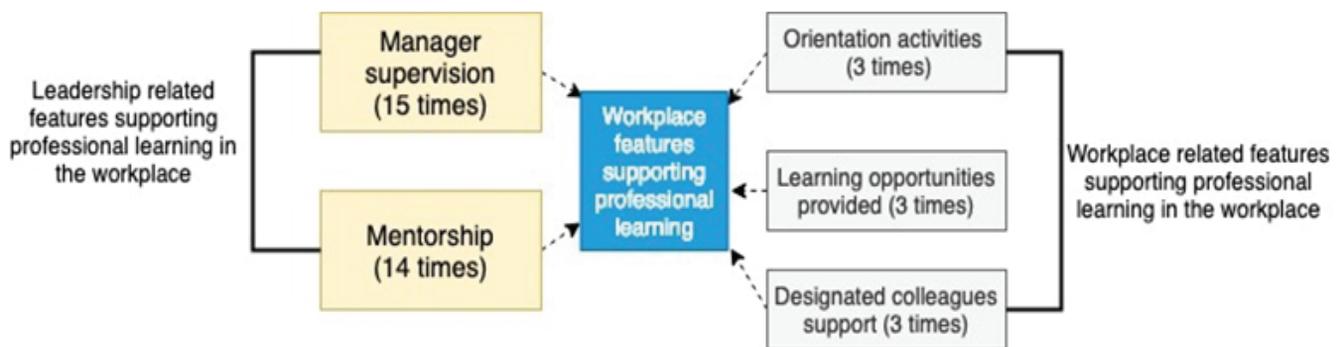
1. Leadership is a strong influencer of professional learning in all the professions included in this study and in order to implement the possible “solutions” identified in this dissertation it becomes necessary to work with VET teachers in leadership positions
2. If the alternatives found in this work are to be implemented, trust must be developed in the knowledge sharing area of the community.
3. One person inside the community could make a considerable difference, the whole sample showed that individual learning can create a considerable positive impact on the community, for instance, in order to implement any alternative to the challenges existing in the VET teaching profession, it is necessary to have the participation of non-leadership profiles of the community in any initiative or intervention to take place.

## 1. Features of the workplace that support professional learning:

When inquired about the workplace features that support professional learning, most of the participants (15) stated that supervision by their manager or director greatly supported their professional learning. Other professionals (14) underlined that for them, formal or informal mentorship was the strongest promoter for professional learning. Some of the participants (3) said that they participated in “orientation activities” in order to start their work while few mentioned that they were “socially integrated” to the workplace which helped their professional learning. Finally, three of the participants added that “learning opportunities” provided by their workplaces were pivotal for their professional learning to happen.

From what was previously mentioned it is reasonable to believe that during the induction period of the professionals included in this study, the leadership element is extremely valued as well as equally important across all the participant professions.

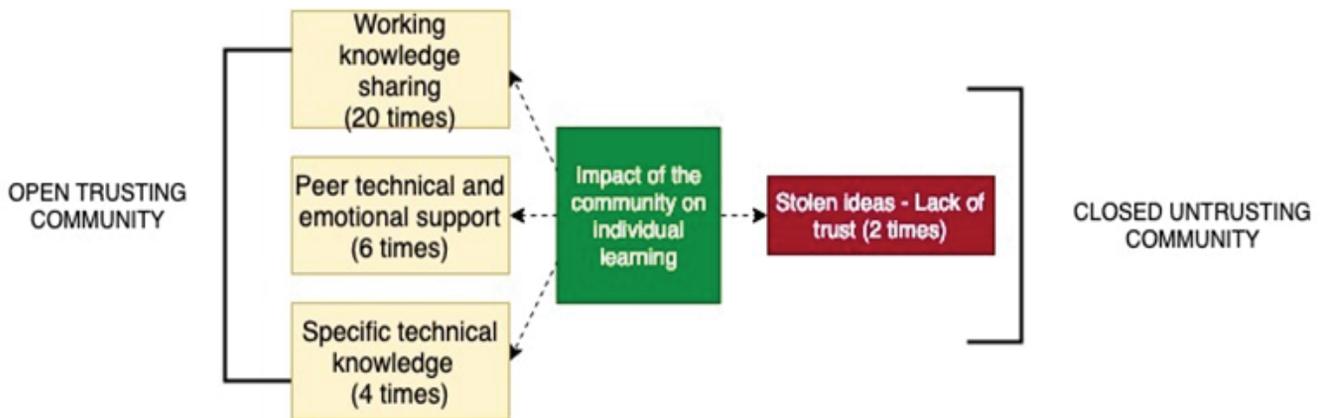
Figure 7. Workplace features supporting professional learning



Source: Researcher

## 2. Impact of participation of the communities of practice on individual professional learning.

Figure 8. Impact of the Community on Individual Learning



Source: Researcher

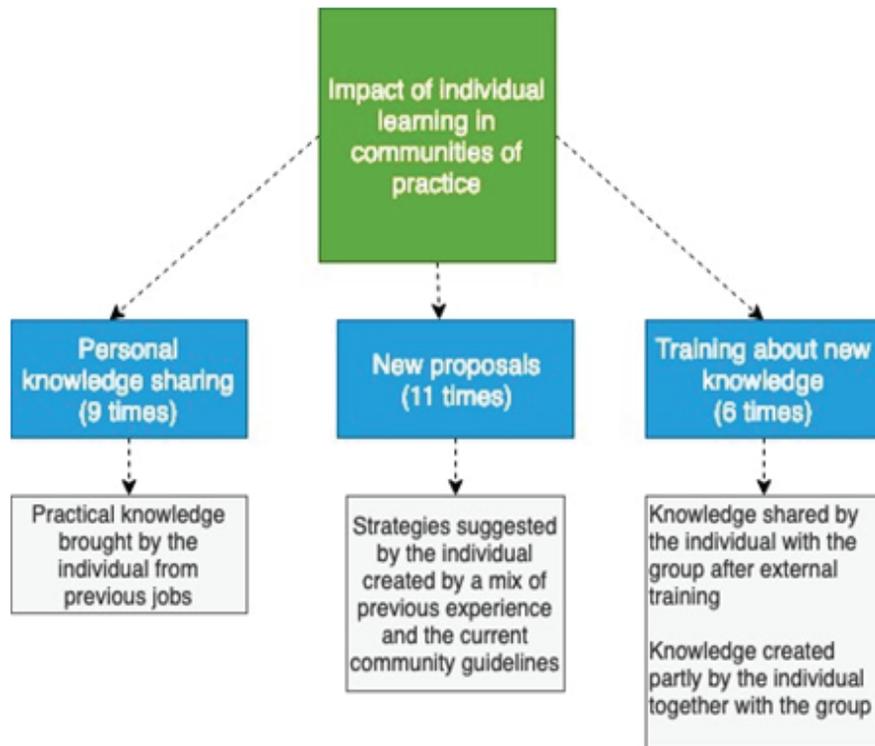
Considering the impact of participation on communities of practice on individual professional learning, two types of communities were identified, the first one can be classified as an open-trusting community in which the new members reach for colleagues for advice and support. The second one can be identified as a closed untrusting community in which knowledge and information are kept from the rest of the community.

The general results considered by most of the participants (20), stated that community knowledge sharing helped with their individual professional learning in their workplaces while others (6) mentioned that one-on-one peer support was very effective in their individual professional learning. Some of the participants (4) expressed that they supported in the acquisition of technical knowledge for their individual professional learning and few of them (2) said that they got their ideas and projects stolen by their peers.

### 3. Impact of the individual professional learning in the communities of practice:

As we can see in the figure below individual learning created three different types of “impact” in the communities that were both common and important for the entire sample. This leads to infer that while trying to implement the possible solutions identified in four professions for the teaching profession, the participation of just one member of the community could produce significant change in the system.

Figure 9. Impact of individual learning on community of practice



Source: Researcher

Concerning the impact of the individual professional learning in the communities of practice, a third of the participants (9) said that they shared their professional knowledge to contribute to the community, especially newcomers or people recently transferred to their area or project, whereas others (8) proposed or suggested ideas to solve challenges that had arisen in a project they worked in however, the focus on solving problems sometimes got the professionals closer to the community however in some occasions it worked otherwise. Some other participants (11) stated that they had trained their colleagues once they had learnt something new through external trainings.

## Conclusion

More research about trans-professional learning needs to be done, it's quite difficult at this point to foresee all the possibilities of this field, however, there is a lot of missed knowledge that could be used in several professions in a plethora of situations, however just more time and research will bring a clearer light about this topic.

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