Changing Education through Knowledge Management in Romanian High Schools

Proposal: A Knowledge Management Strategy for Mircea Eliade High School in Galati, Romania

Aalborg University

June 2017

Information Architecture

Supervisor: Ann Bygholm

Characters: 169075 (70,44 standard pages)

Raluca Paula Bodescu

Abstract

The present dissertation adopts theoretical frameworks and practical foundations of information architecture to identify the elements and make a knowledge management strategy for getting and sharing knowledge to give teachers the possibility to be informed with the latest news within their field, to cope with daily challenges and to work on their professional development. The knowledge management strategy with all its aims and stages is supported by an Axure prototype of Edu Moodle online platform, prototype which is sketched with the help of teachers working at Mircea Eliade High School in Galati, Romania.

The knowledge management strategy and the Axure prototype have been created to answer the research questions: *How to identify the elements and make a knowledge management strategy to sustain teachers' professional development by a proper management and dissemination of knowledge? What is the understanding of knowledge management in general and in the education field? How to identify management and teachers' needs? How to get ideas for sketching a prototype of an online platform?* This has been accomplished by reviewing literature, outlining models of knowledge management, its process, ways and tools to support knowledge management and trigger organizational change in high schools. Furthermore, ways in which knowledge management contributes to education, steps to implement it, to develop teachers' competences and to innovate trainings for them have been dealt with.

Qualitative data has been collected by interviewing the principal and four other teachers working in the Language and Communication Department. Interviews have been transcribed, meaning condensed and coded and I could get valuable insight and suggestions for building the strategy and the prototype, trying to change the current situation and to contribute to teachers' professional development. The prototype of the online platform has been sketched starting from what teachers need in their practices and activities.

I could develop competences in designing, analyzing, and planning content and structure of various knowledge management practical issues, gathering data in a kind of participatory design way, aiming to be user driven and to have results dictated by users.

In the overall knowledge management framework, knowledge is presented and dealt with in a way in which teachers and high school should gain advantage from using it, should develop skills and competences to work smarter and continually develop their professional growth.

Table of Contents

1. Introduction 2
1.1. Area of concern and case description 4
1.2. Problem statement 5
2. Theoretical Framework 5
2.1. Information Management versus Knowledge Management 5
2.2. Knowledge Management concept, the two major types of knowledge and their benefits 7
2.3. The Nonaka and Takeuchi Knowledge Management Model 9
2.4. Knowledge capture and codification 13
2.5. Knowledge sharing and dissemination 15
2.6. Knowledge acquisition and application 18
2.7. Organizational culture 20
2.8. Knowledge Management Tools 23
3. Knowledge Management in the education sector 26
3.1. Knowledge Management in schools 27
3.2. Perspectives on teacher learning 28
3.3. Nurturing personal Knowledge Management competences of teachers 30
3.4. Creating a learning system for education 31
3.5. Impacts on knowledge expansion and the way Knowledge Management contribute to schools 37
4. Method and Analysis 39
4.1. Process 39
4.2. The lifecycle model 40
4.3. Interviews as part of qualitative methods 42
4.4. Transcription 43
4.5. Meaning condensation and coding 43
5. Final Solution 49
5.1. Knowledge Management strategy proposal 49
5.2. Prototype for Edu Moodle Platform 58
6. Summary 60
6.1. Reflections 60
6.2. Discussion 61
6.3. Conclusion 62
7. Literature List 63

1. Introduction

A lot of sciences have taken an interest in knowledge as a source of providing competitive advantage. In the economic field, three pioneers, namely Smith, A, in *The Wealth of Nations*, Marshall, A., and Arrow, K., in *Learning by Doing*, argued that organizations can become better and efficient at learning if transferring what employees know. In the field of management, Peter Druker used for the first time the term knowledge worker in *Landmarks of Tomorrow*, including in this term programmers, researchers, technical writers and so on (Ichijo & Nonaka, 2007).

Peter Drucker predicted that information and knowledge would play a significant role in economic activities by the fact that employees would contribute to the organization not only with physical output, but also with improved work performance. Thus, the access to information and knowledge would change both the way production is done and the type of production which is done (Druker,2001).

Organizations are becoming more and more aware of the fact that knowledge is a key asset in achieving competitive advantage and progress in a prospective competitive environment. Dalkir, 2011, mentions the fact that knowledge is a key ingredient embedded both in high-technology products and in getting insights about employees.

Information Architecture and Knowledge Management are linked conceptually and they deal with supporting and managing information and knowledge resources. Information Architecture takes in information which is stored in objects, such as files, limited by spaces as websites, which are intended to support user experience. To clarify it, Information Architecture is about organizing the information contained by digital spaces in an easy way to be accessible by users who try to find it, to find their own path to information (Resmini, 2014). The role of Information Architecture has been proven by research in the field as concentrating on a proper manner to organize information on various digital spaces (Rosenfeld, Morville, and Arango, 2015; Rogers, Sharp and Preece, 2011).

The concept of Knowledge Management has firstly mentioned and referred to by Prusak and Davenport, the most known knowledge management writers, when they wrote about libraries in 1993, in the text *Blow Up the Library*. During this time, the concept of knowledge management has not been completely integrated in the theory of management. It has been incorporated in 1995, with the revolutionary work *Knowledge Creating Company* of Nonaka and Takeuki, and in 1998, with the innovative work *Working Knowledge. How Organizations Manage What They Know* of Prusak and Davenport. Thus, the concept of knowledge management has been firstly used and implemented by librarians in their day-to-day library work and then it served as a synonym for the activity held in Information Management (Hobohm, H.C., 2004).

The value of Knowledge Management has also been assessed in education field. As it is a constant need for innovation and change in education, schools have to understand how they can continually improve the processes of knowledge acquisition, creation and sharing. Teachers need to be lifelong learners by working out and by continuing to understand the progress that has taken place in this knowledge age, creating the conditions to enhance their professional development. Knowledge Management has to be practiced in each institution at all levels to update and improve the school's practices and optimize teaching practices. To put it in other words, schools should work on struggling to improve the professional knowledge of school's staff as a network (Tan et all, 2014).

In education, Knowledge Management can be used as a strategy to enhance professional development of school's staff by managing and applying teachers' knowledge, skills, experience and expertise. By planning Knowledge Management strategies and effectively organizing them, teachers are able to keep up with all the new information and developments within their field, improving their teaching practices and leading to producing quality students who will be able to make a difference to the society (Zhao, 2010).

Working on the present dissertation has given me the chance to get to know and to effectively deal with aspects of Information Architecture practice such as applying Information Architecture to education field and making strategies to help teachers find the information they need and achieve their goals, enhancing their professional development and leading to better outcomes as far as students are concerned.

In the 10th semester of the Information Architecture master programme, I have decided to work on implementing a Knowledge Management strategy for "Mircea Eliade" high school in Galati. For this project, I have had a couple of weeks in the 9th semester, namely the Research Methodology course, to decide which theories and methods suit best, to think how to apply them, how to collect reliable and valid data and how to evaluate, redesign and come up with a proper solution for an online platform in my high school. Working with this dissertation has given me the opportunity to understand, practice and create an analytical overview of relevant theories, methods and technologies within Information Architecture. I struggled to select and apply the most relevant theories and methods, arguing for choices and critically reflecting on them.

I have considered that Knowledge Management is of utmost relevance for high schools and in the same time I could use my domain knowledge and my experience as a teacher to bring about value to the strategy, to adorn the dissertation with my personal views, principles and beliefs, and my whole mindset of a school's strengths, weaknesses, opportunities and threats that exist in the field. As I have said, I have thought that, based on my experience, it is suitable and interesting to work with implementing a Knowledge Management strategy to bring about organizational change and to improve achievement and professional development, which would be of great benefit not only for my colleagues, but also for me, if I return and work as a teacher again.

Thus, I can say that improving the working practices and increasing the quality of education demand inspiration and commitment to Knowledge Management. I tried to achieve these aspects throughout the dissertation, in the *first chapter* by understanding not only the process of knowledge, and the way it is acquired, transferred and applied, but also the changes that have to take place in an institution and the kind of tools and infrastructure which support knowledge management practices. Then, in the *second chapter* some perspectives of Knowledge Management in education have been outlined, together with the way teachers adopt and apply the knowledge management process, and last but not least, ways to create a knowledge management system for education. The *third chapter* is about suggesting ways to apply the knowledge management strategy at "Mircea Eliade" high school, analyzing the interviews with principals and teachers working there and suggesting a prototype for the online platform. All in all, I have tried in the present dissertation to understand the challenges the teachers face and to support them by developing their knowledge management abilities in creating, sharing and applying pedagogical knowledge, sustaining their professional growth.

1.1. Area of concern and case description

The Romanian Ministry of Education is trying to bring reforms in the educational system. Each minister is trying to implement new ideas, such as changes in the curriculum or in the national exams and the system is changing again and again. The newest idea is to eliminate the regional inspectorates because schools and principals should be given more power and autonomy. But to achieve this, they need a valuable knowledge management strategy. There is nothing about solving this issue on the website of the Romanian Ministry of Education, nor on the website of Regional School Inspectorates, nor in the news or elsewhere.

Under these given circumstances, all information regarding educational resources, projects, trainings for teachers, school management and so on should be shared and transmitted in the best way possible to arrive to each and every teacher in schools. Some years ago, all teachers took part in annual meetings where relevant aspects were discussed at the beginning at each school year. This has changed now, and just a couple of teachers have access to this meeting, the heads of curricular areas, which means one in fifteen or even twenty teachers for a school. But as I have said, that even these meetings will disappear due to new reforms, there is felt an obvious and urgent need for teachers to have access to the dissemination of information within their subject. A suggestion for the dissemination of information could be through an online platform which supports knowledge management and which may be the right answer to the everyday challenges teachers face as they need to keep up with all the new information within their field.

Having worked as a teacher for seven years, I feel that my experience can bring about a positive change and can make a difference by knowing patterns of thought, needs, behaviour and aims

that model teaching practices and by knowing the environment in which they take place. Having experience in the Information Architecture field helps me to propose some strategies and to make a prototype for a suitable online platform to support the professional development of teachers.

Thus, the dissertation's area of concern is to work on a knowledge management strategy for acquiring, sharing and disseminating knowledge which allow teachers to be informed with the most recent news in education, to optimize their teaching practices, to help them develop activities to create and distribute what they know and learn, and to make a prototype for an online platform, a learning network where knowledge can be improved by processes and technologies that assist teachers' professional development.

1.2. Problem statement

I have formulated the issues and challenges of the present dissertation in the following problem statement:

How to identify the elements and make a knowledge management strategy for getting and sharing knowledge to give teachers the possibility to be informed with the latest news within their field and to work on their professional development?

This research question covers three main areas of interest, which are emphasized in the following sub-questions:

-What is the understanding of knowledge management in general and in the education field?

-How to identify management and teachers' needs?

-How to get ideas for sketching a prototype of an online platform?

The knowledge management strategy will be created to cover at least two years and it will be targeted at all teachers in the high school.

2. Theoretical Framework

2.1. Information Management versus Knowledge Management

To contextualize Information Management and Knowledge Management, one has to consider the difference between the following connected terms: data, information and knowledge (Bouthillier

& Shearer, 2002). Merriam-Webster dictionary defines *data* as "factual information as measurements and statistics used as a basis for reasoning, discussion, or calculation", *information* as "communication or reception of knowledge or intelligence", and *knowledge* as "cognizance, the fact or condition of knowing something with familiarity gained through experience or association". To rephrase it, data is at the lowest point, seen as unstructured statistics and facts, information comes next and is seen as more structured data, while knowledge is seen as skills acquired through learning and experience. Knowledge is the most valuable of all, because it is closer to action and experience, it can be used in making effective decisions in day-to-day activities, leading to a better production, efficient development or wiser implementation of strategies (Davenport & Prusak, 1998).

Thus, on one hand, information is described as having a meaning, a message which has an impact on the receiver of it. To put it in other words, data is the source of information, and information is the source of knowledge. Data changes into information when the sender adds value, meaning or purpose. On the other hand, knowledge is deeper and more expansive than data or information. It is a mixture of values, experience and expert insight that help new information and expertise be assimilated. To rephrase, knowledge exists in people's minds and it depends on organizations to track and stock it (Davenport & Prusak, 1998).

Information Management is more than data management, it is the management of a wide range of information resources, starting from data to information. (Detlor, 2010). Detlor, 2010, states that "Information management is the management of the processes and systems that create, acquire, organize, store, distribute, and use information. The goal of information management is to help people and organizations access, process and use information efficiently and effectively. Doing so helps organizations operate more competitively and strategically, and helps people better accomplish their tasks and become better informed" (Detlor, 2010, p.103).

As we have seen that data and Information Management have a great value, they are different from Knowledge Management. Information Management concentrates on organizing, examining and retrieving structured and unstructured data and information. It is about the know-what, explicit and well defined, while Knowledge Management is about the know-who, know-how, know-why, tacit, difficult to define and share. Knowledge Management concentrates on understanding and creating an ideal environment where knowledge, wisdom, intuition and experience found in people's minds are acquired and shared. The focus is laid on people and processes, rather than on technology, and is best shared from one person to another.

For a better understanding of Knowledge Management, it has been relevant first to distinguish between data, information and knowledge, to understand the similarities and differences between them. Then, the next step is to go on and investigate knowledge concept, the major types of knowledge which exist, and the forms in which knowledge can be acquired, accessed and distributed. All these will be covered step by step in the next pages.

2.2. Knowledge Management concept, the two major types of knowledge and their benefits

There is a broad range of definitions of Knowledge Management, and most of them underline the crucial aspect about the organizational efforts to make the relevant knowledge available to its employees. The following definitions will emphasize not only this idea, but will also add other aspects, too.

Davenport and Prusak, 1998, argue that "knowledge management is managing the corporation's knowledge through a systematically and organizationally specified process for acquiring, organizing, sustaining, applying, sharing and renewing both the tacit and explicit knowledge of employees to enhance organizational performance and create value" (Davenport & Prusak, 1998, p.14).

Back, et al, 1999, define Knowledge Management as "the collection of processes that support the creation, dissemination and utilization of knowledge between appropriate individuals, groups within an organization and independent organizations" (Baek, et al, 1999, p. 11).

Brown, et al, 2005, mention that "the need to manage the creation and flow of intangible assets like ideas, innovations, best practices, corporate policies and other aspects of intellectual capital has caused many organizations to invest in information systems (IS) generically referred to as Knowledge Management (KM) systems" (Brown, et al, 2005, p.49).

Dalkir, 2011, mentions that "knowledge management is the deliberate and systematic coordination of an organization's people, technology, processes, and organizational structure in order to add value through reuse and innovation. This coordination is achieved through creating, sharing, and applying knowledge as well as through feeding the valuable lessons learned and best practices into corporate memory in order to foster continued organizational learning" (Dalkir, 2011, p.3).

Bergeron, 2003, defines Knowledge Management as "business optimization strategy that identifies, selects, organizes, distills, and packages information essential to the business of the company in a way that improves employee performance and corporate competitiveness" (Bergeron,2003, p IX).

Based on the mentioned above definitions, one can affirm that Knowledge Management is about organizing the processes and strategies that optimize the acquisition, creation, use and sharing the knowledge with the aims to create value and enhance performance for the organization.

To step further into Knowledge Management, the following paragraphs will deal with the two different types of knowledge, namely the tacit and the explicit knowledge.

Polanyi, 1967, has been the first one who coined the terms "tacit knowing" in his famous saying "we can know more that we can tell". With this saying, he tried to emphasize the idea that people have knowledge that it is difficult to define or transfer to others through verbalizing it. Polanyi analyzed the different types of knowledge and affirmed that tacit knowledge is about having a reasonable understanding of a problem, and having the skills to feel the solution in the same time with understanding the effects and results of that solution.

Thus, tacit knowledge is intuitive, is found in people's minds, in their practices, values, experience and expertise, and it is difficult to articulate and communicate.

Nonaka, 1991, builds on the work of Polanyi and gets ahead in explaining the differences between tacit knowledge and explicit one. Tacit knowledge is shown as personal, difficult to record and communicate. Explicit knowledge is further described as systematic and formal, characteristics which make it easier to be recorded and distributed to other people (Nonaka, 1991).

Dalkir, 2011, emphasized the following ideas: "tacit knowledge is difficult to articulate and also difficult to put into words, text, or drawings. In contrast, explicit knowledge represents content that has been captured in some tangible form such as words, audio recordings, or images. Moreover, tacit knowledge tends to reside 'within the heads of knowers,' whereas explicit knowledge is usually contained within tangible or concrete media. In fact, 'tacitness' is a property of the knower: what is easily articulated by one person may be very difficult to externalize by another. That is, the same content may be explicit for one person and tacit for another" (Dalkir, p.8).

The difference between the tacit and explicit knowledge and their characteristics can be seen in the figure below.

COMPARISON OF PROPERTIES OF TACIT VS. EXPLICIT KNOWLEDGE

Properties of Tacit Knowledge	Properties of Explicit Knowledge
Ability to adapt, to deal with new and exceptional situations	Ability to disseminate, to reproduce, to access, and to reapply throughout the organization
Expertise, know-how, know-why, and care-why	Ability to teach, to train
Ability to collaborate, to share a vision, to transmit a culture	Ability to organize, to systematize; to translate a vision into a mission statement, into operational guidelines
Coaching and mentoring to transfer experiential knowledge on a one-to-one, face-to-face basis	Transfer of knowledge via products, services, and documented processes

Figure 1. Comparison of Properties of Tacit vs. Explicit Knowledge (Dalkir, 2005, p.8)

Knowledge Management brings about benefits and advantages for employees, communities and organizations if it is implemented properly. The most important ones for employees are: helping them to be informed with the most recent changes in their field, to properly do their jobs and to save time by taking better decisions. For the community, the main advantages are building some bonds within it, supporting efficient communication and collaboration, developing professional skills and supporting teacher-to-teacher mentoring and counseling. As mentioned above, Knowledge Management has benefits for the organization, too. Some of them need mentioning, such as improving knowledge embedded in services and products, increasing the chances for change and innovation, and providing competitive advantage (Dalkir, 2011).

In the present dissertation, I investigate how Knowledge Management could bring about benefits for teachers and high school, benefits which could have immediate effects on the education of students. Teachers may keep up with the new information, may get, create and distribute knowledge, leading to doing their jobs better and improving their teaching practices. They may benefit from using information and communication technology in their daily activities. By using ICT to support the knowledge management process, teachers may not only be aware of the fact that they are really part of the same high school and they all have the more or less the same aims, but also the objective of supporting teachers' lifelong learning will be achieved, increasing in this way the school performance.

It has been relevant for me to understand the concept of Knowledge Management and the characteristics of the two major types of knowledge and their benefits, to be able to apply it for education, namely for my high school. Starting from these concepts, paves the way for me to know and find out where knowledge is located, referring to documents, departments or teachers, the way knowledge is stored, i.e. in files or in teachers' minds, and what my high school knows and wants, their short term and long term objectives. Working on these, I will be able to link the high school's goals to teachers' goals, developing the right skills of teachers and making sure that these competences and knowledge won't be lost, for example when a teacher retires or leaves the school. Spending time to investigate and improve all these, I will be able to sketch and implement some strategies about transferring knowledge to right teachers, how to take advantage of it and how to make sure that knowledge is transferred to each and every teacher in a single high school.

The next lines will present a well-known Knowledge Management model, the Nonaka and Takeuchi one.

2.3. The Nonaka and Takeuchi Knowledge Management Model

The Nonaka and Takeuchi Knowledge Management Model presents a perspective over the key elements of Knowledge Management, explaining how to manage knowledge to achieve

organizational aims. This model represents the foundation of knowledge creation theory. It shows the way knowledge can be created and distributed in an organization, suggesting four ways in which knowledge can be combined, converted and created, while employees engage in collaboration and learning activities.

Nonaka and Takeuchi Knowledge Management model underlines the success of Japanese organizations in reaching their goals of bringing about innovation and creativity. This model has its roots in the management of serendipity and in the model of knowledge creation. To create knowledge and generate change and innovation, emphasis is placed on employees' commitment and engagement. Japanese cultural medium reflects the emphasis on group knowledge, which is transformed from tacit to explicit and then is easily distributed from people to the group and lastly to the organization (Nonaka, 1991).

Nonaka et al, 2000, consider the organization as being an entity which creates knowledge continuously out of the existing skills of the employees, and they investigate the process creating and maintaining knowledge (Nonaka, 2000).

Nonaka et al, 2000, argue that the *knowledge creation process* is a continuous one and starts with the individual who is acquiring new knowledge, new approaches of the world, while interacting with other individuals or with the environment. Doing so, the individual not only influences the environment, but is also influenced by it.

According to Nonaka and Takeuchi, there are four modes of knowledge conversion by which organizations dynamically create knowledge. They are illustrated in the following figure:

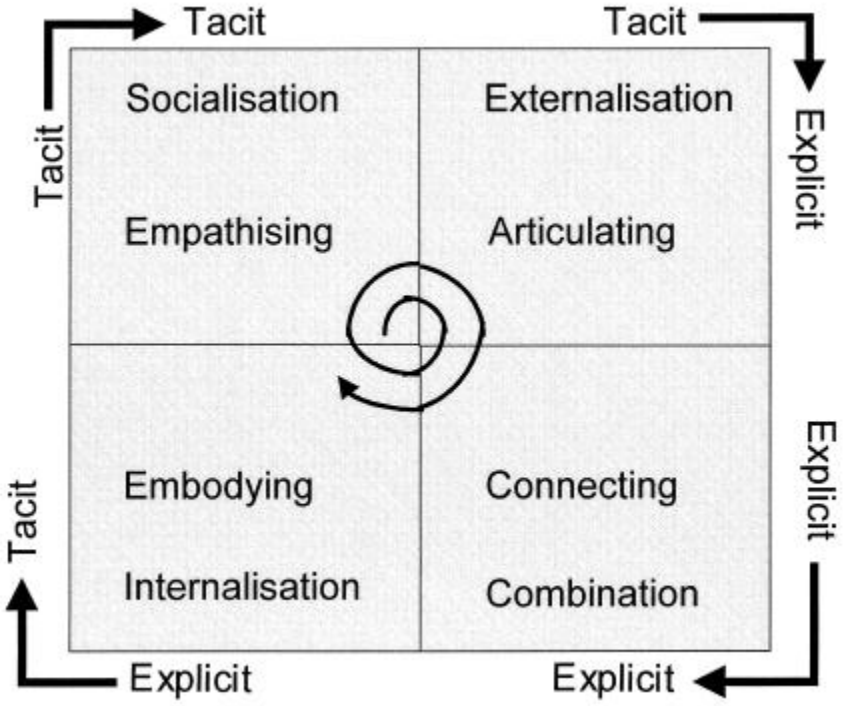


Figure 2. Nonaka and Takeuchi Model of Knowledge Conversion (Nonaka and Takeuchi, 2000, p.12)

1. The process of *socialization*: from tacit knowledge to tacit knowledge.

2. The process of *externalization*: from tacit knowledge to explicit knowledge.

3. The process of *combination*: from explicit knowledge to explicit knowledge.

4. The process of *internalization*: from explicit knowledge to tacit knowledge.

The first mode of knowledge conversion is described in the quote below.

"In knowledge creation, one transcends the boundary between self and other, inside and outside, past and present. In socialization, self-transcendence is fundamental because tacit knowledge can only be shared through direct experiences which go beyond individuals. For example, in the socialization process people empathize with their colleagues and customers, which diminishes barriers between individuals" (Nonaka and Takeuchi, 2000, p. 13).

Socialization is the process of building collective tacit knowledge, where skills, beliefs and ideas are expressed and exchanged. Individuals are instinctively interacting, discussing, sharing experiences and the tacit knowledge is transferred from one person to another, starting to be part of another person's tacit knowledge. This process is both effective in the way knowledge is created and shared, and ineffective in the way that tacit knowledge is seldom captured or written down, continuing to be embedded in the minds of individuals (Nonaka and Takeuchi, 2000).

The process of *externalization* converts tacit knowledge to explicit knowledge and it may occur in the form of sketches, analogies or metaphors. When this happens, knowledge is made definite and easily understood, which implies an efficient sharing. In this process, individuals express the know-who, know-how and know-why, uttering tacit knowledge. Because it is more difficult to convert one type of knowledge into another, it is recommended that someone must interview individuals in order to get the exact knowledge for other individuals to understand and apply it (Nonaka and Takeuchi, 2000).

Nonaka and Takeuchi describe this mode as: "in externalization, an individual transcends the inner- and outer-boundaries of the self by committing to the group and becoming one with the group. Here, the sum of the individuals' intentions and ideas fuse and become integrated with the group's mental world" (Nonaka and Takeuchi, 2000, p. 13).

Combination is the process which consists of embodying explicit knowledge into a more detailed explicit one, recombining parts of explicit knowledge into a new form to structure content. In doing so, explicit knowledge is formed both internally and externally, meaning in the organization or outside it, and then is changed and combined into new knowledge. Then it is distributed internally among individuals (Nonaka and Takeuchi, 2000). This mode is further

described as “in combination, new knowledge generated through externalization transcends the group in analogue or digital signals” (Nonaka and Takeuchi, 2000, p. 13).

Nonaka and Takeuchi argue that: “in internalization, individuals access the knowledge realm of the group and the entire organization. This again requires self-transcendence, as one has to find oneself in a larger entity” (Nonaka and Takeuchi, 2000, p. 13).

The process of *internalization* consists of converting shared knowledge and expertise throughout an organization into individual one. The new formed knowledge is used by individuals who learn by doing, change and apply it into their own tacit knowledge. By doing so, individuals handle tasks and working practices in a different way and knowledge becomes a valuable asset (Nonaka and Takeuchi, 2000).

Nonaka and Takeuchi, 2000, point out that the accumulated knowledge, experience, skills are evolving in a spiral movement, going through all processes, beginning and being amplified all over again. The knowledge creation process is never ending and it continuously renews, dispersing both horizontally and vertically throughout an organization.

I have used Nonaka and Takeuchi Knowledge Management model in the present dissertation because it allows me to better see what Knowledge Management means, its key elements and stages, and the way knowledge can be managed for the benefits of individuals and the organization.

Working with this model makes it possible and easier to create, capture, distribute and store pedagogical knowledge (i.e. classroom management strategies) and pedagogical content knowledge (mixture of pedagogy and content, unique to each teacher’s understanding) in my high school. Spending time with this model and trying to adopt and apply it leads to efficiently building a dynamic process of knowledge creation in the high school. This model can be used as an example of starting to carry out activities that assist teachers in acquiring knowledge, in collecting information, in sharing their newly formed skills, leading in the end to improving their teaching practices. The Knowledge Management stages may help teachers to create and distribute knowledge through informal discussions that may take place in and outside the high school, through interacting and collaborating with colleagues and through adding new resources and knowledge on building a prototype of a learning network.

Applying this model, I could understand that knowledge is certainly one of the most important key assets in a high school and consequently it must be dealt with in a meaningful way to optimize its use and production. This model has been very useful because it helps the high school to exploit what teachers know, to improve their knowledge and to enhance their professional development.

The next pages deal with the phases involved in the Knowledge Management cycle, which consists of capture, creation, codification, sharing, and application of knowledge within the organization. All these major stages are forming an integrated Knowledge Management cycle.

2.4. Knowledge capture and codification

During the first phase of the integrated Knowledge Management Cycle, tacit knowledge is captured and explicit knowledge is coded. Knowledge capture is about recognizing and codifying the existing internal knowledge from the organization and external knowledge outside it. Knowledge creation deals with building new knowledge that does not exist in the organization. When it has been estimated that the new content has value, the content needs contextualized, which means that key characteristics have to be identified to match the user, to integrate it and embed it in his/ her working practices. It is the decision of users who can say that the content is useful, valuable or nor. Thus, they come up with new content and develop the next cycle iteration. Knowledge capture can include a lot of activities, such as organizing information details about employees or coming up with a training program (Dalkir, 2005).

The first phase of the integrated Knowledge Management cycle can be seen in the figure below:

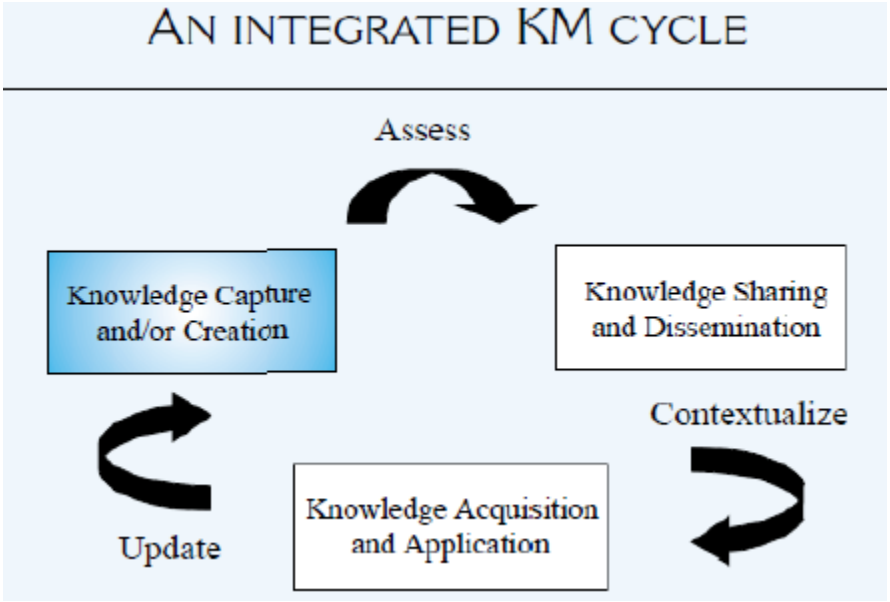


Figure 3. An Integrated Knowledge Management Cycle (Dalkir, 2005, p. 78)

Knowledge capture is more than a method of adding knowledge, it is more related to the discovery of the individual's knowledge and integrating it into the organization, changing it into organizational knowledge and supporting organization's evolution. Its evolution and competitive advantage are gained when an individual's knowledge including competences, ideas and

innovations are changed into organizational knowledge. Knowledge capture is not easy sometimes, especially in the case of tacit knowledge, when the expertise of one individual is made available to the others who need it. It is easier to capture explicit knowledge and make it accessible, supporting learning and decision making. When knowledge is made explicit, it should be structured in a document and then distributed in a forum or online platform (Dalkir, 2005).

The next lines will deal with a couple of techniques to capture and create knowledge.

Tacit knowledge capture

Individuals have a more important role in capturing and creating knowledge than organizations, because organizations 'per se' are not able to gain knowledge or learn. Learning for individuals is a social process of assimilating new knowledge and using, interpreting it, and can occur in group discussions and interactions (Dalkir, 2005).

Dalkir, 2005, outlines three approaches to capture tacit knowledge from individuals and groups, approaches which have to be used together: *interviewing experts*, *learning by being told* and *learning by observation*. *Interviewing experts* approach consists of two techniques, structured interviews, held when employees are about to retire, and stories, which may stand for informally communicated key events or interactions. In *learning by being told*, the interviewee articulates knowledge which is explained and validated in the form of a knowledge artifact that translated this knowledge into an explicit one. In *learning by observation*, expertise is identified and captured on audio or video while an expert solves a task or scenario.

Explicit knowledge codification

Converting knowledge into an explicit form as a file or document makes it easy to communicate it, does not have to involve face-to-face interaction for example. Documents persists over time, may be shared in the organization and are available when needed, by the actual or future staff. Knowledge codification gives the opportunity to share and use collective knowledge, enabling employees to be more efficient. As knowledge is considered to be a valuable asset, attention has to be paid on capturing and sharing it.

The first stage of the integrated Knowledge Management cycle has been used in the present dissertation to better understand the system of capturing knowledge, and the way it can be acquired and changed into organizational knowledge. This stage helps to build an environment which supports interaction and experimentation, where the circumstances for the evolution of the organization are met.

It allowed me understand how to treat knowledge, how to create it, how employees can practice, learn and use it to support and provide a working environment where creativity, innovation and change are crucial. It has also allowed me to discover the process in which new knowledge can

help employees and sustain their professional development by improving their teaching practices.

The next pages deal with the second phase of the integrated Knowledge Management cycle, knowledge sharing, and with enables and barriers of knowledge sharing.

2.5. Knowledge sharing and dissemination

Knowledge needs to be shared and disseminated in an organization before it is used at the organizational level. But doing so, is not as easy as it seems. The extent to which an organization manages to share knowledge depends on its culture and amount of accessible knowledge. An organization which is based entirely on authority relationships, organized from top to bottom, discovers that it is difficult to share knowledge because a management based on control does not pay enough attention on chances for interaction and socialization, and thinks that it is enough to change just individual knowledge into organizational one. It is often difficult for an organizational structure based on command to be flexible and share knowledge crosswise across groups. If knowledge is shared informally, its distribution is faster and relying on trust and cooperation (Bhatt, 2000).

Knowledge sharing and dissemination, one of the most important phases of the cycle, deals with making the right knowledge accessible to the right people. It is about the ability to share and the willingness of the employee to share what he/she knows in order to help peers be efficient and learn more things. Learning and teaching activities, mentoring and training courses provide real opportunities for sharing knowledge (McInerney and Koenig, 2011).

Knowledge sharing is the process by which experience, ideas and expertize of employees influence other employees (Davis, 2006). The second phase of the integrated Knowledge Management cycle, knowledge sharing and dissemination is illustrated in the figure below:

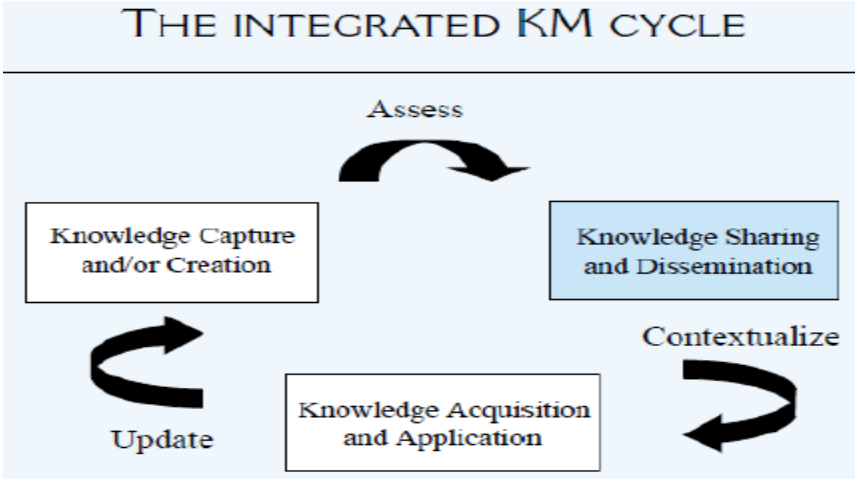


Figure 4. The Integrated Knowledge Management Cycle (Dalkir, 2005, p.110)

While employees involve in activities such as communication, collaboration and interaction, they influence each other's points of view, expressing and exchanging shared conditions of reality. Thus, knowledge is produced during social interactions through shared understandings of the people taking part in these knowledge sharing activities. Knowledge sharing is a key method that brings about quality in an organization, and doing it properly by means of online platforms is a crucial aspect (Dalkir, 2005).

Organizations must decide to learn continuously and to adapt fast to an environment which is changing permanently. Therefore, the process of knowledge sharing is not static but dynamic, being part of the continuous learning and allowing the organization to expand and improve. The desired competitive advantage is brought by the renewal of knowledge created by employees who share their experience and ideas in the organization from peer to peer, from peers to groups, from groups to organization. To bring about value, knowledge sharing should cause changes in working practices, in behaviour, should develop new ideas, thoughts and policies (Bender & Fish, 2000).

Enablers and barriers to knowledge sharing and dissemination

Knowledge sharing depends on a number of individual and organizational factors such as time, availability, willingness, trust and purpose of employees to look for and have an open mind to knowledge sources.

The degree to which explicit knowledge is accessible may aid knowledge transfer, because it is easy to share and sort documents, files and so on (Ichijo & Nonaka, 2007).

Physical proximity between the source and the receiver of knowledge is another factor that aids the transfer. This happens because knowledge is credible and valid when the receiver trusts the source, either personally, professionally or institutionally (Ichijo & Nonaka, 2007).

Knowledge transfer is efficient if it happens among employees who have similar jobs because they learn better together and exchange thoughts and opinions. If conditions for them to meet are created or online networks where they can easily interact are made available, they will meet and interact more, talk about possible problems they have and they will come up with possible solutions or best working practices to follow. During interactions and exchanges, depending on the context, the source and receiver of knowledge change, the one who knows more will lead the discussions. Knowledge transfer is optimized by the intent of people both to teach and learn actively. The intent is influenced both by the inner skills of people, their personality, and by the organization which should create the conditions in which knowledge sharing happens and is rewarded, to motivate employees to transfer knowledge (Ichijo & Nonaka, 2007).

The same view is shared by Widén-Wulff, 2007, who explains that context and individual preferences reveal templates of information behaviour. To understand how people plan and make possible the sharing of knowledge, how they engage in interactions, accent has to be put on group identity. This means that some characteristics of the group have to be analyzed, such as the way they communicate, collaborate, their values, experience, expertize, individual roles, timing and trust.

Widén-Wulff, 2007, mentions that information behaviour in online networks has been characterized by actors, activities, resources, conditions for interaction, communication and collaboration. To understand how people learn together and share knowledge, the way they interact has to be examined and analyzed to discover patterns of accomplishing goals.

Research in the field has proven that people achieve success in performing their daily activities and practices if their interactions and relationships are based on trust. If peers are trustworthy, efficient collaboration is enabled, and human interaction is effective. What is more, the timing of sharing may also act as an enabler in knowledge sharing. People know when is best to share and receive knowledge, when is the most convenient time for them (Widén-Wulff, 2007).

Knowledge sharing is sometimes tough to achieve because the concept of knowledge includes different content such as the know-what (facts that can be easily divided into bits and codified), know-why (knowledge about principles, cause and effect relationships), know-how (necessary abilities to successfully perform tasks) and know-who (information about who knows what and how to do what). Thus, it is not an easy task for people to explain how they do something, they often call it intuition. More difficult than this is transferring this kind of knowledge (Ichijo & Nonaka, 2007).

What is more, the transfer of knowledge depends also on culture. The procedures and working practices of one culture may be inappropriate in another (Ichijo & Nonaka, 2007).

Explicit knowledge can inhibit transfer if it is not properly codified. The same happens for tacit knowledge if it is ambiguous, unstructured and bad organized. Thus, it has been found that causal ambiguity, which refers to poor understanding of the causes of success or lack of success of working practices, is one of the barriers for sharing a working practice (Ichijo & Nonaka, 2007).

What is more, the difference of knowledge between the one who shares knowledge and the one who receives it, may inhibit knowledge sharing. This happens because of a bad communication between an expert and a relative novice. The expert may find difficult to explain and express his/ her expertise in the field and to find and give examples which are suitable and easy to understand for the novice (Ichijo & Nonaka, 2007).

Scott, 2005, lists among possible barriers in the transfer from individual to group the following: personality differences, skills of communication and persuasion, fear of loss of knowledge

control, divergent objectives, fear that knowledge can be mediocre and not special. Among barriers from group to individual there are mentioned the following: a learning environment, a tendency to accept new methods and changes, learning skills of individuals, trust, lack of communication methodology and group pressure. In the transfer from the group to organization there are: an organizational culture that does not facilitate learning, lack of trust, fear of criticism, punishment, worry about reward.

Knowledge sharing and dissemination has been used to underline how important is for employees to access and distribute knowledge, to know when to alternate roles in doing it. There have been presented aids to sharing knowledge and how to avoid barriers to lead to an efficient collaboration among peers in an organization. Ways to help employees better perform their tasks and to help the whole organization to meet its objectives have been outlined. Implementing a strong system as an online platform, together with providing the best conditions and means for knowledge sharing play an important role in knowledge dissemination.

To support knowledge sharing, the Knowledge Management strategy must outline and understand the needs and requirements of the users, as well as possible enablers and barriers in the process of knowledge sharing.

The next pages deal with the last phase of the integrated Knowledge Management cycle.

2.6. Knowledge acquisition and application

The last phase of the integrated Knowledge Management cycle, knowledge acquisition and application is about using the knowledge that has been identified and created during the first two phases of the knowledge cycle. After being identified and shared, knowledge has to be used and applied in a proper way, as shown in the figure below.

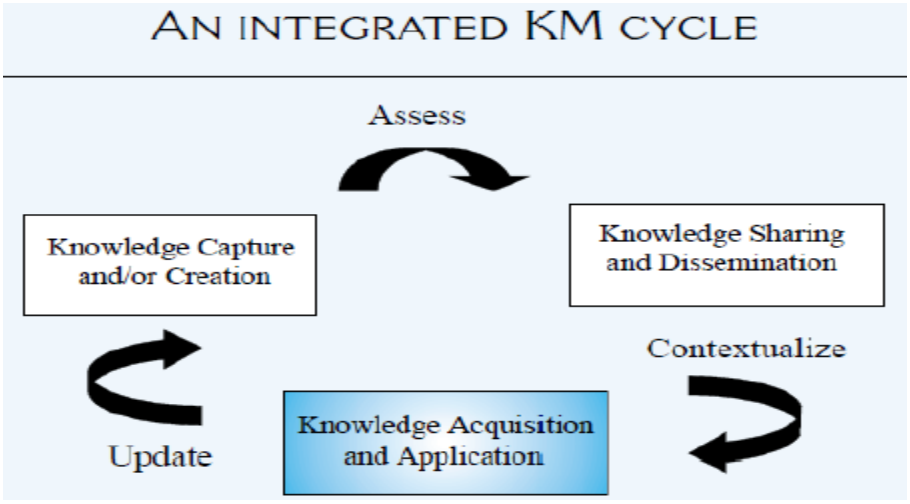


Figure 5. An Integrated Knowledge Management Cycle (Dalkir, 2005, p.146)

Dalkir, 2005, states that the goal of the Knowledge Management process is to support organizations to give the employees permission and access to the organizational memory so as both employees and organizations become effective and reach their goals. The aim of becoming effective is reached only if employees and organizations learn how to manage knowledge as an artifact and as a process, understanding the concept of knowledge and the techniques for managing it in the organization. Doing so implies that employees and individuals first identify and build knowledge by working out how it is created, distributed and used. An effective Knowledge Management process supports and facilitates the access, use and application of knowledge assets and resources (Evans, Dalkir & Bidian, 2014).

Organizations achieve competitive advantage and success if they capture organizational knowledge, if they reuse it and apply it properly. Knowledge repositories ease the employees' access to knowledge. They are portals which keep and manage organizational knowledge, and they may contain documents, files, data and records. A knowledge repository is successful if it includes and provides a mixture of employees' explicit and tacit knowledge. A successful acquisition and application is influenced by the personality traits, character, intent of employees, the knowledge itself, the context in which takes place and the reason for reusing, depending on specific tasks and activities (Dalkir, 2005).

What is more, employees must be motivated and sustained to share, use and apply what they learnt to a knowledge repository, which is the same with organizational memory. It is argued that knowledge must not be entirely kept apart from employees because they always add value by giving advice, helping peers and applying the knowledge in the proper context. It is crucial that employees learn both from failure and success while they understand how various actions and tasks change and influence the results of different projects (Evans, Dalkir & Bidian, 2014).

Knowledge acquisition and application refers to the way knowledge is used to gain advantages and benefits. Employees establish the value of knowledge through its context, they assert the ease of use, they apply it to solve scenarios, complete tasks and improve their activities. They manage knowledge by observing situations and cases, evaluating potential alternatives, deciding what to do next and implementing final solutions (Evans, Dalkir & Bidian, 2014).

It is inner to the employees how and to what degree they learn, innovate and change the existing knowledge, applying it in practice in their daily activities. It depends on the capacity of each employee to use the repository of knowledge, to apply it to current situations, to test ideas and pick up different ways to solve problems. In this last phase, employees learn-by-doing, applying knowledge in their work context and thinking innovatively. The phases of the Knowledge Management process are a whole cycle of continuous learning and innovation, where knowledge is processed, built and managed to provide the individuals and organization the chance to learn,

to share what they have learnt and to make available the collective experience to better perform the working practices and activities (Evans, Dalkir & Bidian, 2014).

The last phase of the integrated Knowledge Management cycle has been used to better understand how to manage knowledge, how to find out which one is of use, how to deal with it to be distributed and accessed by employees so that they make the most of it, using and adapting it to improve their daily work and activities. I used it to understand what roles employees have, meaning how they build knowledge, the way they store, retrieve and share it, how they consume and use it in different contexts, applying it to the best of their knowledge and capability. I can definitely say that this last phase is the most valuable of all, because if knowledge is not made use of, Knowledge Management initiatives cannot succeed. I came to an understanding of the stages of the Knowledge Management process, how individual knowledge is created and how it evolves to a collective knowledge, how new knowledge is embedded in documents and services, and how it is shared across the organization, all these leading to an ultimate aim of creating innovation and improving employees' daily activities.

The next pages are going to analyze the organizational culture' role and how to implement organizational changes to accommodate Knowledge Management.

2.7. Organizational culture

Merriam-Webster Dictionary defines *culture* as "the integrated pattern of human knowledge, belief and behaviour that depends upon the capacity for learning and transmitting knowledge to succeeding generations" and "the set of values, goals and practices that characterizes an institution or organization". Whereas Business Dictionary defines *organizational culture* as "the values and behaviours that contribute to the unique social and psychological environment of an organization; an organization's expectations, experiences, philosophy and values that hold it together, and is expressed in its self-image, inner workings, interactions with the outside world, and future expectations. It is based on shared attitudes, beliefs, customs, and written and unwritten rules that have been developed over time and are considered valid".

Thus, culture is a shared vision of experience and values which are communicated in social interactions, whereas organizational culture is the unitary vision, the way of thinking shared by the majority of employees in an organization (Ashkanasy et al, 2011).

Cheng, 2015, defines *school culture* as "the knowledge and values shared by a school organization. It involves the belief and behaviour of teachers, which depends upon their capacity to create, absorb and transfer knowledge to succeeding generations. Schools have a set of values

that are explicitly stated and aligned with their mission statements. Knowledge develops over time, through experience" (Cheng, 2015, p.25).

To bring positive change to a specific culture, it is required first to decipher that culture, to understand how it works, to collect cultural valid data (Schein, 2004).

What happens with the Knowledge Management initiatives within an organization is dictated by organizational culture. This is illustrated in the figure below:

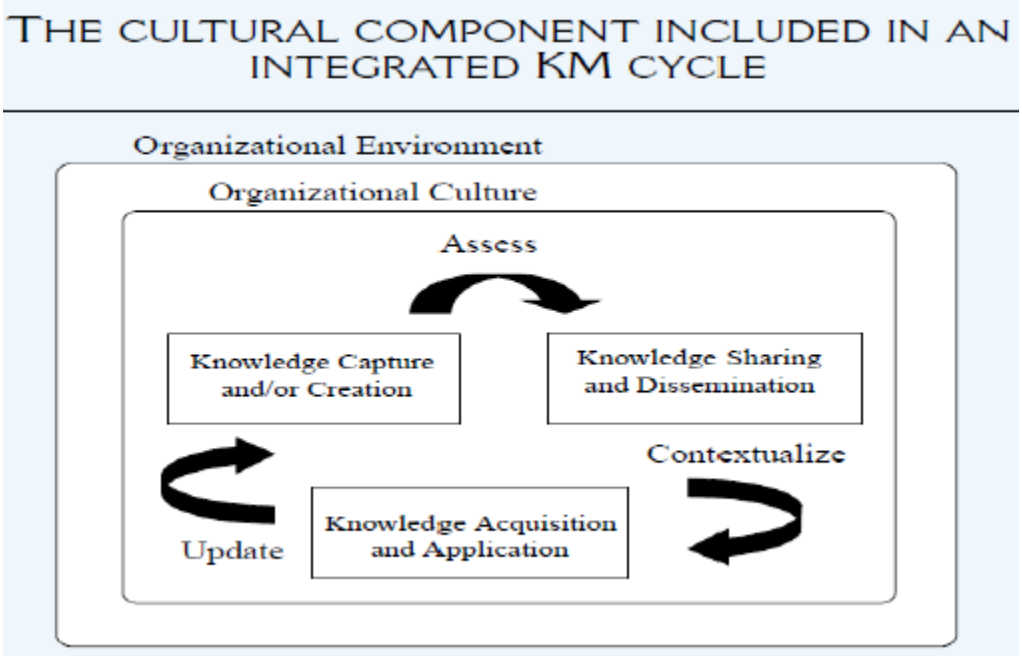


Figure 6. The Cultural Component Included in an Integrated Knowledge Management Cycle (Dalkir, 2005, p. 179)

A cultural change is needed to implement Knowledge Management and to promote knowledge sharing and communication among peers.

Burnes, 2004, suggests some steps in his approach to change: problem analysis and the completion of some stages, which are Though field theory, Group dynamics, Action Research and the Three Step model which consists of unfreezing, change and refreezing again.

Kurt Lewin's contribution to understanding individual and group behaviour is still relevant in organizations. Lewin was preoccupied with solving the social conflict, especially the problems of disadvantaged groups. He believed that the solution to resolving social conflict was to facilitate learning and to give the individuals the opportunity to understand their perceptions of the world around them. Lewin considered Though Field Theory, Group Dynamics, Action Research and the 3-Step model of change a unified whole with each element reinforcing the others, all of them being essential to bring about Planned change (Burnes, 2004).

Field Theory deals with understanding group attitude and behaviour by trying to organize the complexity of the field where the behaviour happens. He argues that in order to understand a situation, it is essential to understand the status quo, the conditions which maintain it. Lewin mentioned that group behaviour is a set of forces that affect the structure of the group and the behaviour of individuals. Any changes in behaviour are caused by changes in the forces within the field, field which is in continuous adaptation. There might be a rhythm to the behaviour and processes of a group, but these fluctuate constantly owing to changes in the forces that affect the group. Lewin stated that in order to understand why and how organizations and employees act in a given situation and what forces are necessary to be changed to create the conditions for change to happen, there is a need to measure the strength of these forces (Burnes, 2004).

Group Dynamics is of utmost importance in shaping up the way its members behave. In developing this approach, it is of great value to analyze the characteristics of the group which make it to behave in a certain way and also what forces affect it and how can the forces be changed in order to elicit a more desirable form of behaviour. It is argued that group behaviour, not the individual one, should be the main focus of change.

Action Research is seen as a process in which three phases are worth mentioning: the first one is that change requires action and is directed at it; secondly, successful action is based on analyzing the situation correctly; and the third one is based on identifying all the possible solutions and choosing the most appropriate one. To achieve a good result, an individual needs to understand that change is necessary, has to be a 'felt-need'. To introduce change, the 'felt-need' has to be high in an organization and the individuals must be helped to think of their position. Lewin, 1946, argued "that Action Research proceeds in a spiral of steps each of which is composed of a circle of planning, action, and fact-finding about the results of the action. It is an iterative process whereby research leads to action and action leads to evaluation and further research" (Lewin, 1946, p. 206). In order to be efficient, Action Research must take place at the group level, and must be a collaborative process which involves all members (Burnes, 2004).

Three-Step Model is one of the key contribution to organizational change. It consists of three steps. In order to achieve *unfreezing*, the status quo must be admitted that is not valid, guilt or survival anxiety must be inducted and a psychological safety needs to take place. *Moving* involves taking into consideration all the forces and evaluate, on a trial and error basis, all the options. Individuals and groups have to move from a less acceptable to a more acceptable set of behaviours. *Refreezing* tries to stabilize the group at a new quasi-stationary equilibrium in order to ensure that the new behaviours are safe from regression to some extent. Refreezing needs changes to organizational culture, rules and practices (Burnes, 2004).

For the organizational change to occur, first there is a need to change the group activities to better support individual behaviour. Although the organizational change process will be a long one, small steps can be taken to progress towards the overall cultural change goal, such as: clearly define desired cultural outcomes, assess the current cultural state, diagnose the existing

culture with respect to desired knowledge-sharing behaviors, assess tolerance to change, identify Knowledge Management enablers and barriers and conduct an analysis to map how to get from where the organization is to where it should culturally be (Dalkir, 2005).

I have used organizational change in the present dissertation to figure out the characteristics of organizational cultural environment and to find out how to best catalyze the likely organizational change to better support Knowledge Management. In trying to trigger organizational change, first I needed to review some existing models, to analyze them and to see which one is the most suitable. Trying to carry out the mentioned above views to change brings forward the organization's success only if two conditions are created, namely discovering and keeping the sources of motivation, implying Field Theory and Group Dynamics, and changing social group's behaviour by Action Research and Three Step Model of Change.

The next pages present a summary of tools that are useful in the implementation of the Knowledge Management strategy.

2.8. Knowledge Management Tools

The following paragraphs focus on the crucial role of infrastructure, which facilitates and enables Knowledge Management practices in learning organizations. There are a lot of key requisites which facilitate and support Knowledge Management activities, such as web-based applications, mobile devices, user friendliness and worldwide access. ICT tools optimize the available knowledge processed and build up new knowledge ideas, experience and expertise (Rao, 2005).

Knowledge Management tools assist the stages of the entire process. For example, knowledge acquisition can be supported by recording videos and building and gathering data in a database; knowledge sharing can be supported by techniques to access data from the database or creating an online platform where knowledge and expertise are easily shared and accessed. There are various tools that support Knowledge Management, and these are divided into ICT tools and web based tools. All the various Knowledge Management tools pay attention to learning and assimilation processes of individuals who are changing information into knowledge (Ghani, 2009).

The fact that Knowledge Management tools assist the integrated Knowledge Management cycle is also demonstrated by Dalkir, 2005, in the figures below:

THE TECHNOLOGY COMPONENT IN AN INTEGRATED KM CYCLE

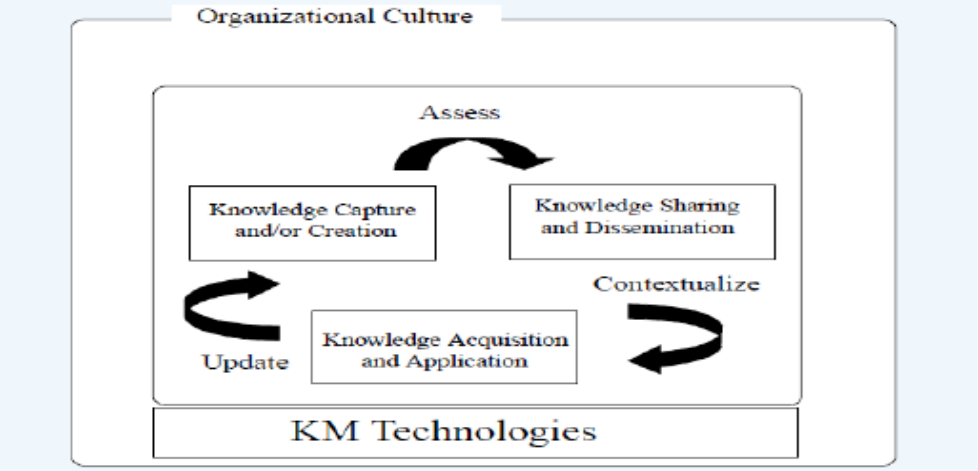


Figure 7. The Technology Component in an Integrated Knowledge Management Cycle (Dalkir, 2005, p.219)

MAJOR KM TECHNIQUES, TOOLS, AND TECHNOLOGIES

Knowledge Creation and Capture Phase	Knowledge Sharing and Dissemination Phase	Knowledge Acquisition and Application Phase
Content creation ■ Authoring tools ■ Templates ■ Annotations ■ Data mining ■ Expertise profiling ■ Blogs	Communication and collaboration technologies ■ Telephone ■ Fax ■ Videoconferencing ■ Chat rooms ■ Instant messaging ■ Internet telephony ■ E-mail ■ Discussion forums ■ Groupware ■ Wikis ■ Workflow management	E-learning technologies ■ CBT ■ WBT ■ EPSS
Content management ■ Metadata tagging ■ Classification ■ Archiving ■ Personal KM	Networking technologies ■ Intranets ■ Extranets ■ Web servers, browsers ■ Knowledge repository ■ Portal	Artificial intelligence technologies ■ Expert systems ■ DSS ■ Customization–personalization ■ Push/pull technologies ■ Recommender systems ■ Visualization ■ Knowledge maps ■ Intelligent Agents
		■ Automated taxonomy systems ■ Text analysis—summarization

Figure 8. Major Knowledge Management Techniques, Tools and Technologies (Dalkir, 2005, p.220)

Some of them will be outlined in the lines below.

For the first phase, knowledge capture and creation tools, blogs are the most known of all. They take the form of open diaries on the internet and people use them to discuss their ideas, opinions, knowledge and expertise. There will be not only text, but also video and audio elements will be inserted (Dalkir, 2005).

For the second phase, knowledge sharing and dissemination, technologies are divided into two groups, namely groupware technologies and networking technologies.

On one hand, groupware technologies enable employees in a learning network to better structure their activities. They support emails, newsletters, sharing of files and planning meetings. Groupware technologies can be synchronous, which means that employees can use them in the same time and at the same place, such as voting, or asynchronous, using it in different time and places, such as videoconferences or forums (Dalkir, 2005).

On the other hand, networking technologies are more elaborated, including knowledge repositories, intranets, extranets and web-based shared workspaces. Knowledge repositories are online expertise storehouses which are updating ceaselessly and include the know-what, know-how and know- why (Dalkir, 2005).

For the last phase, knowledge acquisition and application, there are a number of technologies for an organization to make use of, such as e-learning systems (which support learning, assimilating and applying new knowledge), adaptive technologies (which support adapting knowledge to the needs of its users) and personalization technologies (which support targeting content which is interesting and suitable to users) (Dalkir, 2005).

Apart from the ICT based tools, there are some other Knowledge Management *techniques* which are suitable to education, such as mentoring, story-telling, project teams or trainings, all of which facilitate learning, develop trust, and generate the accomplishment of goals. These techniques improve the transfer of tacit knowledge and help in retaining experience and expertise inside the organization (Clutterbuck, 2001). They enable the employees to work effectively, they have a positive impact on employees' commitment, enhancing their skills, improving individual performance and leading to the professional development of employees (Khakwani et al, 2012).

I have used Knowledge Management tools and techniques in the present dissertation to outline and figure out relevant ways to optimize the process of implementing the Knowledge Management strategy. It has been relevant to sketch the array of tools and techniques that ease the stages of the integrated Knowledge Management cycle. Knowledge Management tools provide support to employees in acquiring, creating and sharing knowledge and they are the

source that causes Knowledge Management strategy to happen. Providing this summary of Knowledge Management tools and techniques helped me to select and gain an understanding of which ones are most relevant for my dissertation and how can they help users and organization fulfill their goals.

The next chapter is going to deal with Knowledge Management in education field, how are the phases of the Knowledge Management process applied in education, which are most important and relevant within the field, what impact do they have and how can a learning system for teachers be created.

3. Knowledge Management in the education sector

This chapter is structured in five sub-parts which are presenting what is known about the use of knowledge management strategies in schools and what benefits they bring to education. All the five sub-parts are built on four literature sources, namely *Knowledge Management in the Learning Society,* OECD from 2000, *Knowledge Management for School Education,* by Cheng from 2015, *Knowledge Creation in Education,* by Tan, So & Yeo, 2014, as well as on the article *Knowledge management in education sector: issues and challenges* by Kulkarni, 2013. All of them are going to be further described below.

OECD, 2000, provides an understanding of knowledge and learning processes in different sectors, among which the education sector is given exclusive attention to. Thus, the way teachers acquire, share and use knowledge is presented to understand the nature of the knowledge management process and to seek ways to improve it. Authors in educational research, health as well as from private sectors, who have been dealing with issues like how knowledge and learning will be drivers of economic growth and change in the near future, contributed to this book.

Cheng, 2015, deals with applying knowledge management to education, presenting strategies to develop teachers' knowledge management abilities to face the daily challenges in a knowledge society; goes on with presenting the role of culture and ICT in knowledge management application; and ends with models to carry out knowledge management activities and to implement them in schools.

Tan, So & Yeo, 2014, focus on implementing knowledge building into practice in schools. It is based on contrasting studies on pre-universitary system in Singapore schools and international perspectives on issues like knowledge creation. It is a broad example of theory in practice, of various perspectives on how both teachers and students can achieve success by working on ways to create knowledge. It is an analysis of both the way knowledge creation conditions can be provided and the benefits of doing so.

Kulkarni, 2013, addresses the challenges and opportunities of knowledge management in education and the practices used by schools to develop teachers' knowledge and to foster innovation and change. The study reveals a couple of issues such as relating knowledge management with teachers' daily activities, sharing knowledge both in the institution and outside it. Some recommendations are further made such as formulating a proper knowledge management strategy and facilitating knowledge management activities.

I must also mention how all the five parts, which are going to be further dealt with, fit together. All of them have in common the fact that they reveal the structure and nature of the knowledge management processes, the way it works in schools, the way teachers' abilities can be developed to sustain professional growth and development. It has been relevant for my dissertation to try to find out how teachers assimilate and apply knowledge in practice, how their learning and teaching skills can be developed when there is no clear agreement about the contents or lengths of trainings teachers should follow, to come up with some solutions to help schools use the existing knowledge and teachers work smarter by becoming highly educated lifelong learners.

3.1. Knowledge Management in schools

The following paragraphs deal with the way Knowledge Management is applied in schools.

In the education sector, Knowledge Management refers to the set of practices adopted by schools and teachers to bring about innovation and change. Institutions come to realize that professional development of teachers' knowledge is a key asset to be competitive and successful in the current age of knowledge and technology. It is vital to create organizational knowledge and to share it among members to improve their working practices, to increase the quality of education, to improve performance and professional development (Kulkarni, 2013).

To support lifelong learning of teachers, schools need to understand how the processes of teaching and learning can be improved, how learning autonomy can be enhanced, how can knowledge be acquired in shorter times, and how can the new knowledge contribute to practicality and efficiency of teaching approaches. To bring about innovation and change, first there is a need to understand how knowledge is managed, i.e. how it is created, shared and applied to optimize the efficiency in education (OECD, 2000).

In the current digital age, information and communication technologies are changing the traditional way of disseminating knowledge, bringing about new ways for knowledge creation and distribution. Knowledge process is not always a linear one, starting from production, following by transfer and ending with application. It is rather interactive, depending on the conditions under which institutions and teachers generate knowledge, validate it and see how it works, adopt, implement and institutionalize it (OECD, 2000).

There is no general agreement about the content, lengths and structure of trainings and courses that teachers should follow after they graduate university. Teachers possess specialized knowledge both about the subject they are teaching and pedagogy and methodology of teaching. In the first years of teaching, the training of teachers focuses more on pedagogical content, rather than curriculum. This happens because teachers need to assimilate pedagogical, psychological, sociological and philosophical knowledge, which forms the basis of education field (OECD, 2000).

There is no clear distinction between how much theory and how much practice should be included in teacher education. Besides this, there is always public and political interest in the reforms that should optimize the quality of education or should increase the academic performance of students. Politicians have taken some measures trying to make initial teacher training practice-based by being trained by teachers with more experience in the field.

The knowledge base of teachers relies on personal experience, on what they figure out that works in the classroom or on informal conversations with peers about it. There is no scientific knowledge of techniques that work to reliably edify the knowledge base. Teachers learn teaching intuitively and they tend to approach issues in the same way, based on their feelings, rather than rationally, their personality traits being more suitable sometimes than pedagogical principles (OECD, 2000).

Although there are a lot of resources and knowledge that are shared, it is not known how knowledge is assimilated and changed into practice and habits. It depends on the each and every teacher to see to what extent they absorb and adopt new resources, ideas and expertise and they practice through trial-and-error learning. Thus, it can be said that the knowledge repositories of teachers are full of tacit know-how but poor in codified and explicit knowledge (OECD, 2000).

I have used the above paragraphs to understand the directions taken by educational research and figure out which are the best solutions towards professional development of teachers mentioned by research. I used all these to gain more insight about the pressure felt by teachers regarding reforms aimed at continuous professional development of teachers and at improving students' achievement. I have understood that changes and trainings of teachers should be practical, relevant, accessible and adapted to meet the demands of knowledge institutions.

3.2. Perspectives on teacher learning

I considered views on teacher learning an aspect worth mentioning, and that is why the next lines focus on them.

Knowledge creation practices have been brought to light in education as in other sectors. This happens because of the continuous demand to help students develop their 21st century skills, allowing them to be valuable assets in a knowledge economy. Teachers involve in creating professional knowledge to seek innovation and to solve problems that may occur in their teaching approaches.

To respond to educational reform, teachers have to continually update and create their knowledge and skills, enhancing their professional development. They engage in both individual and collective learning by taking part in interactions and learning experiences and by constantly testing improvements in the classroom. For teachers to be engaged in collaborative learning, schools need to be organized into learning networks. Doing so, schools will constitute enablers of professional learning which will ease teachers' daily challenges., and will help them reach personal, professional and organizational aims. Teachers choose to group themselves in learning teams based on the subject they teach or the same grade levels (Tan, So & Yeo, 2014).

Teachers form and group in learning networks because networks trigger teachers' collective learning and build on and develop teaching approaches. Workshops and courses are considered to be external to schools and therefore they are not able to solve daily challenges encountered in the classroom. Thus, the best activities are the ones which foster collaboration among teachers and which are specific to school's culture. By involving in these kind of activities, teachers exchange their views, experience and opinions, creating, transferring and using understandings and knowledge (Tan, So & Yeo, 2014).

Teachers learning is considered a social process, in which learning occur from social participation (which shapes one's actions and experience) and practice (which gives meaning and structure to approaches). Analyzing teachers' learning demands investigation not only on how they develop practices that deal with and improve their professional need for development, but also on the way human learning occurs. Learning is seen as a cycle of actions such as

"(1) questioning some aspects of the current practice and wisdom;
(2) analyzing the situation to surface the underlying causes or explanatory mechanisms;
(3) modeling the solution in terms of the newly found explanatory relationship;
(4) examining the new model to understand its potentials and limitations;
(5) implementing the new model;
(6) reflecting on the process; and
(7) evaluating the process and consolidating its outcomes into a new, stable form of practice (Tan, So & Yeo, 2014, p.265).

In this cycle, teachers involve in activities where they rebuild approaches and practices, plan lessons, constantly changing and achieving professional aims, depending on their personal needs and contexts.

Outlining the above perspectives on teacher learning helped me clarify what has been dealt with in the literature and discover the similarities between learning in literature and learning in practice. I found out that teaching is very much contextualized and therefore clear pedagogical and methodological solutions cannot be found in literature, they can only be continually tested and discovered in classrooms.

3.3. Nurturing personal Knowledge Management competences of teachers

The following paragraphs focus on the way teachers' abilities can be fostered to allow them develop professionally.

Nurturing personal Knowledge Management competences of teachers is another aspect that needs consideration for the success of Knowledge Management strategies. To be able to teach students how to learn, teachers should first develop their learning skills themselves, acquiring knowledge in their lifelong professional development. Developing personal Knowledge Management abilities contributes to teacher's lifelong development. Personal Knowledge Management refers to the whole range of processes that teachers use to collect, search, use and distribute knowledge in their daily activities and to the way the processes help them in their daily activities. The information overload does not make teachers more informed or trained, they need to learn to manage the information, to apply it effectively to improve their teaching practices. To succeed, teachers need a number of skills, which are formulated by Cheng as:

"1. *Retrieving skill* is the ability of learners to retrieve information from relational databases, electronic library databases, websites, threaded discussion groups, recorded chats, and moderated and unmoderated lists.
2. *Evaluating skill* is the ability to make judgements on both the quality and relevance of information to be retrieved, organized and analyzed.
3. *Organizing skill* is the ability to make the information one's own by applying ordering and connecting principles that relate new information to old information.
4. *Collaborating skill* is the ability to understand others' ideas, develop and follow through on shared practices, build win–win relationships, and resolve conflicts among these underlying principles.
5. *Analyzing skill* is the ability to extract meaning from data and convert information into knowledge.
6. *Presenting skill* is the ability to familiarize oneself with the work of communications specialists, graphic designers and editors.
7. *Securing skill* is the ability to develop and implement practices that help to ensure the confidentiality, integrity and actual existence of information." (Cheng, 2015, p. 51)

Research within the field has proven that interacting with peers and involving in collaborative activities permit teachers to develop personal Knowledge Management skills, developing all the seven skills mentioned above. Adopting collaboration tools such as online platforms, wikis, google docs or e-learning activities can ease the entire process. Discussing, evaluating and reflecting on each-other's learning, teachers acquire knowledge and make use of all their cognitive skills (Cheng, 2015).

The above paragraphs provide other possibilities and aspects for teachers' professional development. I have been able to recap how teachers' personal Knowledge Management abilities can be developed to enhance and sustain their professional growth. I have once again outlined that their skills cannot be acquired, used and sustained without efficient use of technology.

3.4. Creating a learning system for education

The following pages which are based on chapter three of OECD, 2000, are going to describe how can an ideal learning system be created in schools.

In a knowledge age, the education system needs to change and adapt to improve managing knowledge and to achieve the final outcome of helping students develop the 21st century skills which are so necessary for their life and work. To achieve these, the education system needs highly educated lifelong learners, who must learn how to learn both formally and informally, in various settings, autonomously or collectively to bring about innovation to their workplace. Research in the field has proved that it is unlikely to teach these skills and competences, and they need to be modelled, which means that teachers develop these skills in an apprenticeship way, having experienced peers as examples, continually acquiring and developing their skills on learning and teaching (OECD, 2000, p. 67).

In the current digital age, new knowledge sources need creating, such as information and communication technologies which supports formal education and adds quality to autonomous learning or collective one. Moreover, students are more skillful than their teachers, because they are born in this age and technology is innate. There is a demand for accessible trainings, better counseling to balance theory and practice, a commitment to using ICT in the classroom, for a high quality and cheap education. What is more, teachers need to learn to distinguish active knowledge needed by students from passive knowledge, which is no longer used. To do this, teachers don't need to put a lot of effort in their work, they rather have to work smarter, to achieve performance through managing knowledge, properly changing the structure and the organizational culture of institutions (OECD, 2000).

To create a valuable learning system for education, some questions needs clarified, such as what kind of knowledge is needed and by whom, which is the most suitable means to manage

knowledge, what measures are needed to improve the management of knowledge and what infrastructure is needed to assist it, how may these goals be achieved to be sure that the system works well, make efficient use of the process and achieve its goals and how can these developments support the school of the future. The answer to these questions may lie in the way knowledge is managed, more exactly in making a commitment to management of knowledge, in maximizing the role of teachers in Knowledge Management, in using networks and ICT to support it, devising new types of professional development for practitioners to assist priorities of Knowledge Management, integrating teachers' knowledge, skills and behaviour into institution and designing an infrastructure that assist the Knowledge Management processes (OECD, 2000).

To develop a commitment to Knowledge Management, teachers need to share their experience, knowledge to improve teaching and learning. Most of teachers' knowledge is personal, individual rather than collective, tacit rather than explicit and this is because they acquire knowledge individually, by trial-and-error. The first thing to do is to reveal the existing knowledge of teachers. It can be achieved by undertaking an audit of teachers' professional knowledge or mapping not only the things they know about learning and teaching, the things the need to know but also who knows what. Doing these, knowledge repositories can be created. After gathering and analyzing collective knowledge, institutions may begin to internally manage and share knowledge. When institutions know what they know and what they don't, they realize what they need to know and what measures they have to take to create new knowledge. A knowledge audit may be the key to efficiently create and manage knowledge and to create new knowledge which is going to successfully deal with future school challenges (OECD, 2000).

To maximize the role of teachers in Knowledge Management, teachers need to start seeing themselves as knowledge producers who are continuously testing and experiencing before achieving successful results, changing from working alone in a private designed work setting to working collaboratively. They progressively develop professional skills, they adapt to situations better and faster in time. They continuously experiment what works and what doesn't, working differentially with students because they are different, some are fast, some slow, with different needs and paces. The first step to take is to make small changes to test what works (being considered a source of building knowledge). Then new knowledge has to be adapted and used to one's style or practice. Next, new explicit knowledge has to be absorbed in one's existing tacit knowledge. Last of all, making small changes has to constitute a way of knowledge sharing with other teachers by sharing opinions, testing things together, learning from mistakes and failures, teaching students how to learn (OECD, 2000).

Using networks for Knowledge Management demands teachers to be more collaborative, to naturally work with peers. Because of the huge numbers of teachers in schools, figuring out ways to manage knowledge is a challenge. Courses and trainings for teachers are somehow important, but networking might be the key. Although schools are in themselves networks and both internal and external relationships are built, teachers do not talk about them. The first step is to make teachers realize the internal and external networks, to help them understand their value and use

them to manage knowledge. This can be done by an audit of internal and external networks, what do they mean, how are they used and how might they be used for better knowledge management. Sharing knowledge means not just receiving it, but also applying it in one's own way. For example if a teacher speaks about a method, the other acquired knowledge, but it is only transferred when the second teacher converts it into know-how, applying it in the classroom. Changing knowledge into know-how involves testing and modifying it to one's own context. When more than one teacher do this, knowledge sharing is successful. Testing and making small changes needs to be encouraged (OECD, 2000).

Another aspect of knowledge transfer is knowledge transposition, which means dissemination knowledge from one place (classroom, school) to another, and it is more difficult to achieve because there are differences in organizational cultures, the value of students and teachers.

What is more, it is easier to transpose knowledge among teachers teaching the same subject in different schools than to transpose knowledge among teachers of different subjects in the same place. Principals have to create the circumstances to encourage teachers of different subjects to come together and interact, to learn from one another, because there are these differences between them which trigger innovation.

For knowledge transfer to succeed there is a demand for an understanding of the process. Knowledge is not considered to be transferred when it is communicated, it needs to be properly applied. Stickiness, which corresponds to the cost of knowledge transfer from the provider to the recipient, is an obstacle in knowledge transfer. This happens because the provider may be not a credible and authentic knowledge supplier, or the recipient may not have the necessary skills to adapt knowledge, there may be ambiguity about the enablers of good methods or the transfer process is not encouraged to occur. Stickiness explains if and why knowledge transfer and transposition succeed or not (OECD, 2000).

Using ICT for Knowledge Management allows schools to connect and involve in the process of managing knowledge. But it is the network which may be focused on and given priority, because innovation comes from them. Building networks may not be regarded as an easy task, because time does not allow, teachers are spending more time in classrooms than outside them. Solutions must be found, such as closing the school for a day dedicated to building an internal or external network (OECD, 2000).

ICT can help building professional knowledge networks, facilitating access to resources, improving teaching and learning by creating knowledge repositories of good practice or debates on teaching approaches. ICT provides chances for knowledge exchange, improves communication and facilitates internal and external networks. On one hand, ICT plays an essential role in encouraging the acquisition, sharing and application of explicit knowledge. On the other hand, ICT has some drawbacks in the transfer of tacit knowledge which cannot be achieved without teachers' meetings and interactions. Principals must encourage teachers to

collaborate and interact face-to-face for a successful knowledge management, by giving time during the school day to take part in activities that create knowledge and lead to optimizing their professional development (OECD, 2000).

Research within the field warn about the tendency to manage innovation from top to down direction. When principals have just some parts of teachers' tacit knowledge, and this is not properly transferred to them, principals cannot efficiently control or organize the knowledge process (OECD, 2000).

Devising new types of professional development for practitioners to assist priorities of Knowledge Management needs to be paid attention to. The education field has to highlight the importance of apprenticeship, because it is really valuable for practitioners' knowledge creation and professional development by easing the process of collective learning, acquiring competences in a community which already possess these competences. Practitioners learn by doing, acquiring skills and tacit knowledge of experts, moving towards learning to do, to belong and to be a teacher. The direction in education has been on learning in institutions, allowing teachers to acquire explicit knowledge. The difference between learning in institutions and apprenticeship learning, as well as learning at university and learning at work, can be seen in the figures below:

In "doing school" Knowledge is….	**In "doing a job" Knowledge is….**
Declarative (facts about…)	procedural (how to…)
Usually explicit	often tacit
easily stated	more easily demonstrated
abstract	concrete
logical	intuitive
"in the mind"	"embedded in action"
an end in itself	a means to an end
remote from application	close to application
learnt sequentially	learnt piecemeal
"hooked" to a text	"hooked" to persons/events
stored in semantic memory	stored in episodic memory
usually fragmented	usually integrated
a stack of information	a stock of experience
something to be remembered	something to be understood
forgotten quickly	forgotten slowly
rehearsed during revision	rehearsed through practice
tested by examinations	tested by performance
a process of acquisition	a process of engagement
weakly related to identity	strongly related to identity
linked to being taught	linked to being coached
This is "learning before doing"	**This is "learning in doing"**

Figure 9. Schooling versus apprenticeship (OECD, 2000, p. 55)

Student-as-learner	Graduate-as-learner
curriculum-driven	task-driven
work to pre-set educational objectives	work without pre-set learning objectives
learning is explicit and self-conscious	learning is implicit, informal, un-self-conscious
solve problems in terms of their theoretical coherence	solve problems in a practical, cost- and time-efficient way
apply abstract intellectual processes to solve them	apply lateral or critical thinking processes to solve them
express ideas and thoughts in writing	express thoughts, ideas and solutions orally
depend on external evaluation	use self-criticism and self-evaluation
develop long-term study projects	work to short-term goals
introverted and isolated study habits	be extroverted and gregarious in work habits
jealous and protective of personal research	share outcomes with colleagues
inter-personal skills not developed	team skills at a premium

Figure 10. Learning at university versus learning at work (OECD, 2000, p. 85)

One can see from both figures that learning in institutions is different from learning at work or learning by doing. Institutions sometimes do not properly prepare graduates for the teaching tasks. But institutions can work out ways to develop lifelong learning skills, creativity skills which enable graduates to adapt to work situations. Both figures focus on the way learning is achieved for teachers and potential teachers. Knowing the difference between the different kind of learning ease the process of figuring out the knowledge teachers possess at a particular given time, what they know and what they need to know to develop and acquire learning and teaching skills.

Although apprenticeship has a great potential to enhance informal and lifelong learning of teachers, it is not widely adopted because of the differences in cultures of trainers and trainees. Nevertheless, some steps may be taken in the teachers' professional development, such as connecting teacher learning with a school's aims and improving institutional development by allowing graduates to be better prepared for jobs (enhancing team work, problem solving skills and making them ready to deal with knowledge creation and lifelong learning). This leads to a couple of benefits as improving teaching and enhancing students' achievement and promoting collaboration (OECD, 2000).

Research in the field emphasize the role of coaching and mentoring both as a way of lifelong learning and a way to better share tacit knowledge. Mentoring provides better opportunities for learning, improving the professional development of teachers by being guided by experts in the field. Thus, mentoring and coaching should be included in trainings because they are important means for knowledge transfer.

Integrating teachers' knowledge, skills and behaviour into institution is another important facet. It has two aspects, the structural one, which means an employees' or institution's networks, links to other employees or institutions, and a cultural one, which corresponds to standards of collective behaviour (mutual trust and aid between employees). The links between employees are based on trust. Under these circumstances, where relationships are built on confidence, knowledge transfer and innovation are likely to succeed (OECD, 2000).

Schools constitute competitive environments where chance and innovation are encouraged if cooperation among teachers is high. A school with high levels of cooperation supports better Knowledge Management and passes attitudes of trust, confidence and networking skills. High collaboration and cooperation among teachers leads to the growth of the group's ability to learn and work together and to a better structure obtained from the collective work.

Designing an infrastructure that assist the Knowledge Management processes is the last focused aspect. To manage knowledge better first demands national cultural change and then local cultural change. A proper infrastructure at the national level requires ICT networks which connect institutions, providing the necessary resources and courses for staff in Knowledge Management and choosing people to assume responsibility for enhancing Knowledge Management. At the local level a proper infrastructure demands methods and systems for professional development, for prioritizing Knowledge Management; equipping institutions with intranets and networks and developing employees' skills in Knowledge Management. A school principal can be asked to have the role of facilitating the build of networks where knowledge transfer is supported. Governments should take some measures to help education be better prepared for the school of the future and enrich and support teachers develop cooperation skills, learning and teaching skills which are vital to Knowledge Management (OECD, 2000).

The pages above have great value for me in understanding the elements and the ways to make a proper Knowledge Management strategy and to accordingly structure its priorities to bring about not only the desired change and innovation in the school's culture, but also the desired professional development. By reviewing literature in the field, I found out what works best in managing knowledge in education, what steps must be taken to enhance Knowledge Management in education, what kind of infrastructure needs to be designed to support it and how teachers' roles can be maximized in Knowledge Management.

I have reached the conclusion that triggering innovation and change in education does not necessary means that the wheel has to be reinvented or new technology has to be discovered, it is more about the way ICT and professional knowledge is managed and used to get benefits from it. Thus, the existing knowledge, experience and expertise of school's staff has to be properly exploited and the conditions to create, share and apply knowledge have to be provided.

3.5. Impacts on knowledge expansion and the way Knowledge Management contribute to schools

The following lines present both the benefits of using Knowledge Management in schools and its impact.

In the present digital age, the current knowledge expansion makes an impact in education, in the way teachers approach their job. Their teaching methods should be based on the belief that learning must occur in a process of knowledge building by being involved in collaboration activities, exploring thinking and reflection. Schools need to gain not only a shared pedagogical knowledge, but also insight on the things they need to know and the decisions they need to take to get the needed knowledge which assures them performance and improvement. Schools need to create knowledge experiences and to develop students' necessary abilities that will help them in the future world of work (Cheng, 2015).

Cheng, 2015, argues that "it is not easy for schools to access the highest quality knowledge and expertise that is available for future development. Schools focus on managing knowledge so as to create value and are looking for best teaching practices, innovative ideas, creative collaborations and streamlined processes for making effective use of knowledge. It is important to help schools and teachers manage their knowledge and learn to cope with change. Thus, the issue of how to help schools use their existing knowledge to create new ideas and new knowledge is a critical research issue to be addressed" (Cheng, 2015, p. 2).

As knowledge expansion has crucial impacts in the world, schools and teachers need to carefully think out whether the skills, traits and habits they develop give their students the best opportunities to succeed in their school activities and at the future job.

Principals have an important role in developing a knowledge-sharing culture because they are responsible for creating the conditions for teachers to manage knowledge, contributing to their professional development, their students' performance and school's improvement. Schools should be transformed into organizational learning institutions which are constantly promoting knowledge sharing. Teachers should be motivated and encouraged to involve in sharing opinion activities on various issues and challenges regarding their teaching practices. Thus, principals should create the circumstances for developing Knowledge Management, for creating tacit knowledge repositories for future use and application (Cheng, 2015).

Social learning is an effective means of sharing best practices. Teachers can improve their daily work by sharing ideas and opinions on pedagogical content knowledge, working together to test what practices work.

Teachers should act as knowledge workers, experts in the subject they teach and proficient in their strategies which let them improve their understanding of the students' needs and develop students' autonomous learning skills.

In a context of a high demand for innovation in education, schools need Knowledge Management to make themselves more valuable and to improve performance. Knowledge Management refers to the activities that assist teachers in creating, transferring and using knowledge to improve their daily teaching practices. Schools need to make sure that knowledge is not lost when teachers retire or leave their job and they should plan efficient ways to capture knowledge. Schools should support teachers in the process of managing pedagogical knowledge to enhance their professional development. Using Knowledge Management in education allows schools improve students' achievement, assures high standard education and teaching, and assists teachers in coping with the daily challenges and issues (Cheng, 2015).

Knowledge Management makes a positive contribution to schools by providing them the means and channels (i.e. ICT) to best use knowledge, allowing teachers to gather data, information and knowledge which help them efficiently do their job. Teachers can exchange beliefs, expertize, thinking and reflecting in action, testing, applying, planning and adopting strategies to improve their every day approaches. Implementing online platforms in schools is a suitable way to build a perfect environment where teachers can share resources, transfer tacit knowledge discussing various ideas, foster teaching performance and learning outcomes, and increase trust and collegiality in institutions. The success of Knowledge Management strategies in schools is influenced by some factors, such as national culture, change of culture management, organizational aims, ICT channels and human traits (Cheng, 2015).

With this part of practical foundations, I have desired to review the literature in the field, to emphasize important aspects of Knowledge Management, to make a summary of Knowledge Management practices in education, their impact, highlighting the role of teachers as knowledge workers, best ways to develop a knowledge sharing culture, to rephrase, the way Knowledge Management contribute to schools.

The pages above have been of great importance for me to understand the challenges schools face in the knowledge age, how they should deal with Knowledge Management to develop teachers' capabilities in creating, transferring and applying pedagogical knowledge.

This chapter has been based on four sources that I found relevant to the dissertation because they all deal with the nature of knowledge management process and the way it is applied in schools. The whole chapter seems to be normative, and this is because the field of knowledge management in education is somehow new, and there are not so many writings on the topic. This is the main reason why I have not provided sufficient particular examples of what happens in schools or examples of how to understand the challenges in a school. But I have managed to outline relevant aspects, such as what is meant by knowledge management process, how it is

organized, assimilated and applied by teachers, how teachers can be helped to work smarter and develop their professional growth.

I have learned that knowledge management exists in teachers' daily activities, it is not a distinct term which cannot be combined and mingled in what teachers do, it is there and teachers must be helped to realize it and take responsibility towards it. This is what I meant and the reason I investigated possible suggestions of strategies for smarter uses of knowledge, for developing teachers' competences, for motivating them to develop a commitment to knowledge management, for allowing teachers and schools achieve performance and qualitative education. All in all, I have come to realize that managing teachers' professional knowledge is the attitude and the direction that must be followed to bring about change.

4. Method and Analysis

In this chapter, some aspects will be described such as the process of writing the present dissertation, the methods employed for data collection and data analysis and the reasons behind them.

4.1. Process

I have made a choice to work with knowledge management in the education field for my dissertation. My experience as a teacher and the decision to go back home and work again as a teacher had a great influence in choosing the topic of the dissertation. My desire has been to bring some positive changes in the high school's culture and to contribute to teachers' professional development in a completely different way and to bring some innovation. I have also wanted to make my principal and colleagues feel that they haven't lost an employee for two years while I have been on a study leave, on the contrary, they gained a more skillful colleague, who is able to help them work smarter, cope with day-to-day challenges and develop their professional growth.

I have brainstormed ideas about the way I imagined my dissertation, finding out common paths to go through, practical foundations and methods to use, defining the frame for the dissertation by adding the knowledge gained during my master and my experience in education.

I started by reflecting-in-action, trying to connect information architecture to education field, using and applying knowledge, diagnosing the problems in education and bringing about changes and solutions by implementing knowledge management strategies. I have reflected on teachers' behaviour, aims and needs that shape teaching methods, on the things I have to consider to change organizational culture and the habits and practice of teachers, on all the aspects I needed

to take into account to implement the knowledge management strategy to support teachers' development (Schön, 1983).

First of all, I focused on the problem setting, then I moved on to the process, putting across and explaining decisions to make, the final objectives I wanted to achieve in the dissertation and the means I chose, various theories and methods used. I defined the problem statement starting from the unclear context in the Romanian education system, trying to narrow it, mentioning the things I wanted to achieve and the way they will be achieved, such as giving teachers the opportunity to be better informed and stay up-to-date with all the news and challenges within their field, supporting their professional development by designing a prototype of an online platform.

Secondly, I contacted the principal of Mircea Eliade high school, telling her what my dissertation is about, and explaining what I want to implement in the school year to come. She gladly accepted to interview her and discuss and find out ways to implement knowledge management in our high school. She agreed to plan a meeting with all teachers working in the high school at the beginning of the school year to inform everybody of the news and strategies we want to implement. We find out ways to develop a commitment of teachers to knowledge management by changing the annual evaluation form and motivating teachers to share their experience and expertise.

Thirdly, I have chosen four teachers from the Language and Communication Department (two teachers of English, one of Romanian and English, and one of French) and I have planned proper times to interview them. After I have done so, I transcribed all interviews, meaning condensing them.

Then, I have taken into account all the data gathered and I have planned the knowledge management strategy for the school year to follow. In the end, I have taken all the aspects and categories suggested by teachers and I have designed an Axure prototype of the online platform which is supporting the knowledge management strategy.

By reflecting-in-action I could judge my perceptions about education, teaching or learning, my whole experience, thinking of various strategies to implement knowledge management, to develop teachers' skills and professional growth, combining my information architecture knowledge with my professional knowledge in education, giving coherence to the dissertation (Schön, 1983).

4.2. The lifecycle model

I have chosen the lifecycle model to be the framework for identifying elements and designing the knowledge management strategy. It can be seen in the figure below:

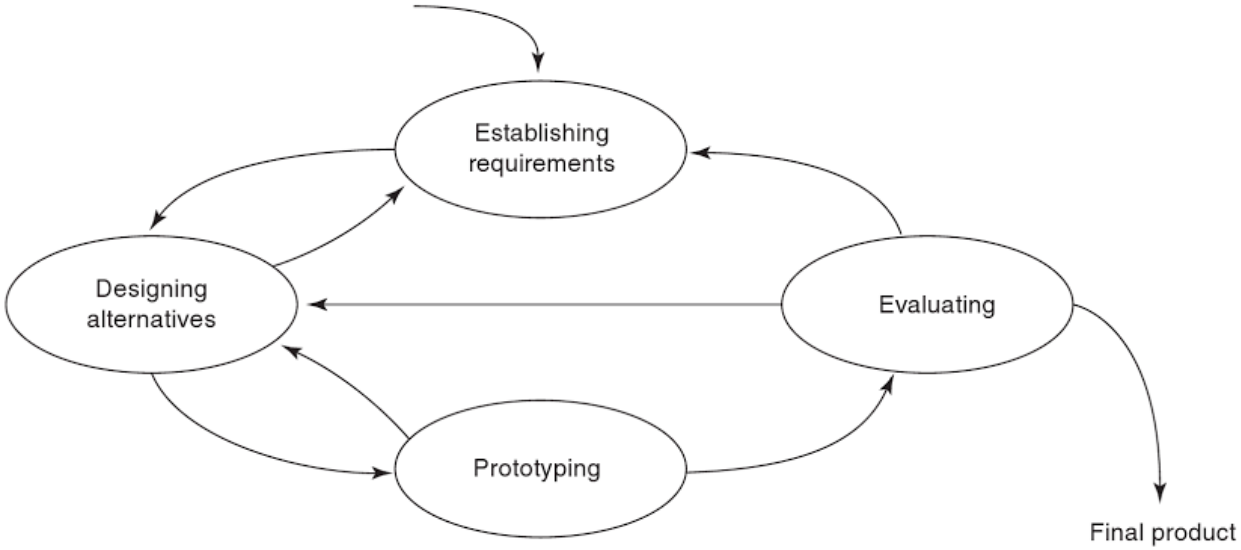


Figure 11. A simple interaction design lifecycle model (Preece, Sharp & Rogers, 2015, p. 332)

The model employs four facets: establishing requirements, designing alternatives, prototyping and evaluating. It illustrates the modality in which a design takes steps to become an end-product, highlighting the need to move back and forth as changes and new ideas pop up (Preece et al, 2015). The model is relevant for my dissertation because it describes the process of planning, creating and implementing the knowledge management strategy in education.

The lifecycle model has been chosen to use my initial knowledge and experience, to question them and reorganize them by adding new knowledge of other teachers working in the same department in the high school.

Thus, in the first activity, establishing requirements, I worked from my personal perspectives on the needs of teachers, then I could go on to identify the requirements and needs of other teachers to be able to identify elements and create the knowledge management strategy and the online platform which supports it.

For the second activity, designing alternatives, some priorities of the knowledge management strategy have been highlighted, which include teachers' ideas for meeting requirements and using the strategy.

The third activity, prototyping, has been represented by an Axure prototype for the online platform which supports the strategy. The prototype has been made according to teachers' requirements, after the transcription and meaning condensation of the interviews.

The last activity, evaluating, has not been covered in the present dissertation, but it can be further employed to test the prototype with the teachers. It has not been covered mostly because

evaluation is a stage which represents an ongoing process of evaluating the knowledge management strategy and the online platform, and doing it implies a constant change of teachers' needs and requirements. Evaluating cannot be done just once, it must be frequently done to make sure that the strategy and the prototype are still relevant and suit teachers' needs.

4.3. Interviews as part of qualitative methods

I have chosen to use a qualitative approach, rather than quantitative (which explains a phenomenon by gathering numerical data which is often analyzed in statistics), because I am trying to concentrate more on exhaustive understanding of teachers' ideas, thoughts, experience and expertise rather than on numbers. What is more, a qualitative approach allows constructing interpretive arguments from data, as well as speculating why certain outcomes happened as they did (Bjørner, 2015). Constructivist views for creating knowledge deals with the varied nature of individual knowledge and experience, influenced by cultural and social factors (Creswell, 2014). So, the qualitative approach has been appropriate for the dissertation because I used it to answer questions about the complex nature of a particular phenomenon, that is using knowledge management to enhance teachers' professional development, understanding and developing teachers' points of view (Leedy & Ormrod, 2005).

Therefore, data has been collected by using *interviews*, because they allow more spontaneity, and the answers can be more detailed and elaborate. I created two interview guides (Annexes 1 & 3) which are divided in three parts: research questions, interview questions and the reasons for wanting to know them. Open questions have been used because my desire has been to allow teachers to answer the way they like and to gain unique insight about their opinions to be able to better understand the reasons behind their behaviour (Kelly, 2009).

I interviewed the principal of the high school, together with four other teachers from the language and communication department, to get an understanding of the situation, to identify potential enablers and barriers in the process of managing knowledge, to find solutions to develop teachers' skills, to motivate them to collaborate and to ensure their growth. All in all, the purpose of the interview has been to understand how knowledge is currently acquired, shared and applied by teachers to use the results in the knowledge management strategy. The following questions demonstrate the mentioned above purposes: How do teachers acquire, share and apply knowledge? What improvements do you notice after they complete courses? How should they be motivated to share knowledge and collaborate (Annex 1) or Is tacit knowledge a tool for effective teaching? What do you think you need to know to improve your teaching and learning? How can collaboration among teachers be improved? What aspects contribute to your professional development? (Annex 3).

New ways to enhance teachers' professional development have been suggested, as well as ways to improve cooperation, motivation to efficiently manage knowledge and develop skills towards teaching and learning. They will be further described in the pages to follow.

4.4. Transcription

The recorded interviews have been changed to a written form, the transcription one. I have done it as accurately as I could, because my desire has been to keep them in a coherent way (Annex 4) (Brinkmann & Kvale, 2015).

The five interviews have been converted from audio files to written text documents for a closer analysis. I decided not to type out data as verbalization, but interpreting it and omitting non-verbal dimensions of interaction, transcribing it according to relevant themes using coding to find elements and patterns to build the knowledge management strategy and the prototype for the online platform.

I have taken into account Brinkmann and Kvale's requirements of transcribing interviews, which are the facts that the interview has to be recorded and that it has to be audible to the transcriber. I took some measures to avoid the noise or other disturbing elements planning the interviews at the most convenient times for the interviewees (Brinkmann & Kvale, 2015).

I have also considered the reliability, validity and ethics of the transcriptions. I tried to transcribe interviews as accurately as I could, summarizing the interviewees' answers in a coherent and clear way, using adequate language. I took into consideration ethical issues too, deidentifying the interviewees and protecting the confidentiality as mentioned in the Non-Disclosure Agreement (Annex 7). I paid attention both to transcription to be accurate, as well as to the data accuracy, reviewing the first interview and examining whether teachers are answering to the research questions, and seeing that the first participant did it, I didn't refine the whole guide, but I added some other questions I thought necessary (Brinkmann & Kvale, 2015).

4.5. Meaning condensation and coding

The transcribed interviews have been meaning condensed and coded to catch all details of teachers' needs and requirements both for the knowledge management strategy and for the online platform (Brinkmann & Kvale, 2015).

After having completed the first step in the analysis, deidentifying the participants and transcribing the interviews, data is now ready to be coded. I used coding to categorize the

interviews and to get an overview of the whole set of qualitative data. I have used data-driven coding, which refers to the fact that codes have been assigned while I interpreted data, and not from an early start. Starting from the fact that everything can be coded, I did it for coding teachers' knowledge, for way teachers' handle the process of knowledge management, for identifying enablers and barriers in the process, improving courses, internal and external networks, the prototype of online platforms and for improving teachers' professional development. I followed some steps while coding: first I identified initial categories while analyzing the transcripts, then I wrote the codes and I reviewed them by looking for themes in the transcripts. Using coding I could capture all details of each issue mentioned by teachers, being able to adopt them in the strategy (Brinkmann & Kvale, 2015).

The following pages are going to present some of the most relevant interviewees' answers. Mentioning all the results here would be too excessive (Annex 5, 6).

As far as *teachers' knowledge* is concerned, two teachers said that their base for teaching includes tacit and explicit knowledge, while the other two added universitary studies, teacher training courses and experience. Two teachers said that they used to teach traditionally in the beginning of the career, then they attended courses and they improved as teachers, changing their perspectives. The other two teachers said that they always took into account the characteristics of students, such as age, needs, background, previous learning experience and so on.

Interview person 1: "I prefer the democratic style, but it varies depending on the child and the classroom' s level, if I think of smaller classes. So, if we talk about the level until 13 years old, when I cannot rely on the child's ability to abstract, then I explain him more, I give him more examples to be easier for his mind to make connections. And then the child's responsibility is smaller. As the child grows, I can give him more responsibilities and I can let him make connections, starting from this practical method, that you called it input and output. But again, it varies depending on age. At grammar, there are very useful the activities where you rely on what the child knows already, because he can make connections. The same goes for "the wrong example" methods, which are easier to deal with. Then the child corrects you and in the same time he observes the rule. Speaking of teaching tales, this topic cannot be done in one hour. Firstly, it is used an unspecialized language just to capture child's attention and to open his mind to the content, to the tale's morality. As time goes, as our curriculum stipulates, we will insert specialized language, i.e. literary theory. The child will have to appropriate terms, lexical core, and then to use it in an essay (where I prefer to help children with a plan). The child is not forced to entirely follow the plan, just to guide him."

Interview person 3: "During the first years of my career, I used to teach grammar traditionally- Presentation-Practice- Production. Students were presented the rules, given some examples, then we practiced and in the end, they were the ones expected to produce. After a while I started attending courses in order to improve myself as an English teacher and it changed my perspective. I now show students grammar evidence and ask them to work out for themselves

how the language is constructed, organize them in pairs and groups, I expose them to videos with native speakers and samples of native language, I use games to make practice more engaging. In other words, I changed my lessons from teacher-centered to student-centered. I always try to engage my students into a variety of challenging activities, so that they never get bored, I encourage them to take responsibility for their own learning by becoming aware of their language learning experiences."

As far as *the role of tacit and explicit knowledge* in teaching practices is concerned, all teachers said that they are aware of it, they are using it unwillingly, and they see tacit knowledge a tool for effective teaching and learning. They would all like to have a proper infrastructure to share tacit knowledge, and they would share it in conferences, workshops and symposiums.

Interview person 1: "Tacit knowledge helps us to have more interesting classes, helps us to get closer to the child. Firstly, it helps you to find the gaps and barriers in the act of learning, as opposed to explicit knowledge that can be used by a robot, right?"

Interview person 4: "Tacit knowledge is deeply rooted in my actions and my experience as a French teacher, as in the ideals that I embrace."

Interview person 1: "No, our educational system does not stipulate the tacit knowledge. More than that, most of them are covered by the occult curriculum, meaning by what we almost unwillingly teach. It is like the situation when a child takes an attitude from me, without him realizing it."

The next three questions have been created firstly to *reveal the existing professional knowledge of teachers* and secondly to *create knowledge repositories* for schools to better manage and share knowledge. They all said that they do not know everything about teaching and learning, there is always room for innovation and they need to learn constantly because they change from year to year.

Interview person 1: "I don't know everything about teaching and learning. And this is because I know everything from what I have lived, but each class comes with a different background, with other expectations. We change from year to year, and then to know everything is not necessarily impossible, but complacency (i.e. self-sufficiency) destroys the teacher."

They mentioned the fact that they know they want more, they want to develop professionally, to learn their entire life and they would like to find out more about managing learning (i.e. mistakes and feedback), classroom management and communicative language teaching.

Interview person 1: "I do not know if the issue is "what we don't know about teaching and learning", it is rather "I want more" or "I want more to make myself understood". The main problem I encounter is with high school classes where the content of literary theories is not suitable to the age and level of understanding of a child (it is higher). I mean it is difficult to

transpose adult feelings to a child, to make him understand adult feelings, it's hard to open him to such mature feelings. And then teaching literature is a continuous challenge. I think we should have or we have an ongoing need to reform teaching methods. So, teaching literature is like cinematography. And I think that here is the big problem of teaching literature. Grammar does not seem to cause so many problems. Getting closer to the child requires a different technique over and over again. This is because a certain method is only suitable for only one literary work. Another literary work demands another method or at a certain class it is suitable a method, and for another class is not suitable. Having all these in mind, you can get into a "methods crisis". These ways of getting closer to the child are very useful."

To improve their teaching and learning they need to have a good command of the subject they teach, the desire to continue learning, and they need to experience methods in other environments before doing it in class, to avoid making mistakes. Another one said that she needs to know better students' background and the other mentioned the desire to know about virtual learning.

Interview person 1: "First of all, I think that I need to know and experience methods, but first time not in class. I need to experience them with someone else to see if they work, then I can use them in class. I mean that I cannot afford to commit mistakes in the class."

As far as the *process of knowledge management* is concerned, it needs an understanding of how teachers acquire, produce and share knowledge in the present. Two teachers mentioned they acquire, share and apply knowledge by learning from methodology books, magazines, articles, and the other two mentioned the need to discuss with colleagues, individual study, taking part in teacher courses, meetings and symposiums.

Interview person 1: "We acquire and share knowledge by taking part in training courses, in expert/ specialized meetings, national and international symposiums, and we share very much in the same way, but in class, too."

Two teachers collaborate and share resources on social networks, and the other two by face-to-face discussions, emails, examples, graphics, notes.

The next six questions have been created to understand and deal with *possible enablers and barriers in managing knowledge*. They are motivated to share their expertise, to take part in informal discussions regarding teaching, to find solutions together. They are trying to do it as frequent as they can, but sometimes time is their enemy.

Interview person 1: "Most colleagues are willing to share expertise and tacit knowledge. Some of goodwill, kindness, some do it probably to help. Those who are more experienced, do it for this reason, but also for appreciation and to help colleagues, for collegiality. I personally do not appreciate people who do not say anything, who don't help. Generally, we help each other. Some

people are less sociable but not exaggerated. But it is our job, profession which requires to be good communicators."

All teachers suggested some ways *for improving collaboration and knowledge transfer*. One teacher said it is up to each person, to their character. She mentioned shared activities between classes, experience exchanges, teacher exchanges between classes and frequent methodological meetings. The other three teachers mentioned communicating more, others mentioned a better organization of meetings and sharing information.

Interview person 1: "You see, finding ways to improve collaboration is not an easy task. It is up to each person, up to one's character, personality. I mean I think it's ok to say character. Furthermore, collaboration may be improved by taking part in common, shared activities between classes, or in experience exchanges. Or at some point in time, maybe it would be possible for the class teacher to be changed for a week or two. I mean that another teacher should come and see class, and he can find other solutions, he can come up with other ideas and then he can communicate "his findings" to his colleague."

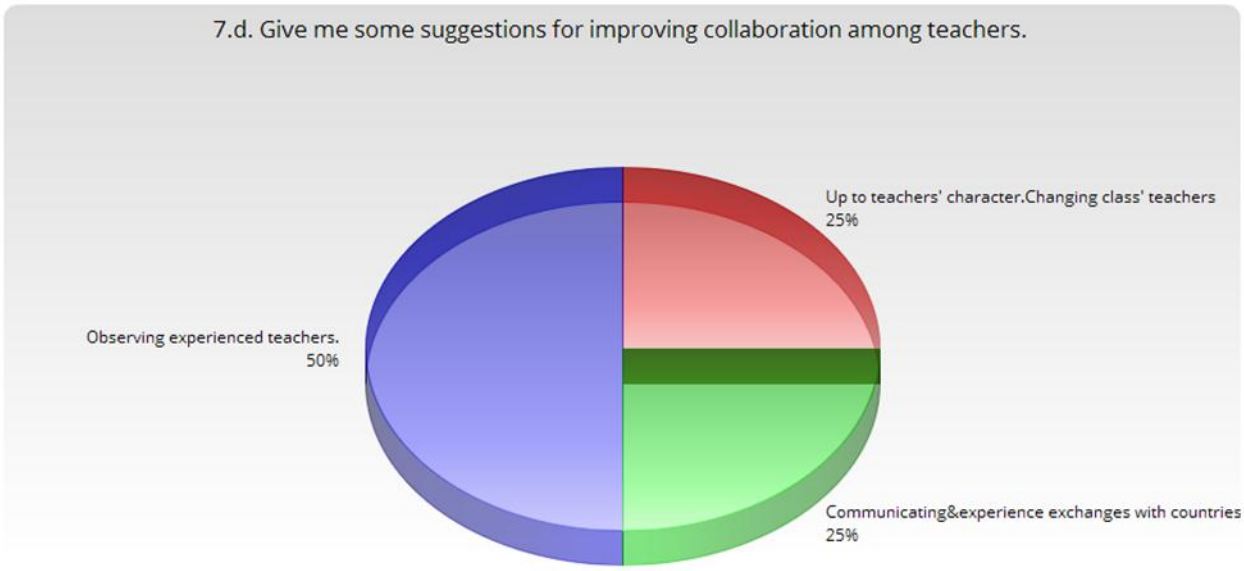


Figure 12. Suggestions for improving collaboration

They said that they are always inspired by their peers, they adapt methods to their own style, and taking with colleagues help them develop professionally, because more mind together work better than a single one.

Interview person 4: "Ideas "born" ideas, talking to colleagues is of great benefit, it reinforces our knowledge, it improves the quality of teaching and learning."

All teachers realized the importance of *internal and external networks*, they have sketched them and they mentioned that they rely on them, but more on themselves when dealing with daily

challenges. Apart from networks, they get inspired from methodology books, internet, newspapers and magazines. They mentioned that in order *to better manage knowledge and improve teaching and learning*, there is a need to correlate the two networks, because they cannot work one without the other.

Interview person 1: "When we teach, we must find a correspondence between networks. The child has to connect the things he learns in class with the things outside it. Because going out of class, of school, he faces real life, which "hits" him. And if he finds out that what I offered him, or what I forced him to do or whatever I did, what he received from me does not find a correspondent in reality, I have basically lost the child forever, I will not succeed to positively influence him."

All teachers agreed that *online platforms are an easy way to acquire and share knowledge* and they need them for their proffesional development.

Interview person 1: "Not necessarily knowledge as content. Knowledge is gained harder, I mean that I must put them into practice, I must evaluate them, there are more of "I must". But the idea or content, yes. It is very easy to share and absorb, but from here I must process them, to come to "knowledge"."

Interview person 1: "Definitely. We live in the century of speed, with so many things to do in a short time, and we always have to be ahead everything. Under these circumstances, such a platform that works as a database too, helps me a lot. And it helps me to avoid those crisis situations when I do not find the solution by myself. Then, at one click away, there are 10 ideas and maybe from their corroboration I achieve something great."

Three teachers are used to online platforms and they would like to find there categories like: courses, news, conferences, contact, about, forum, teachers, students, parents.

Two teachers *see an ideal platfom* as one which is up-to-date, helpful, relevant, accessible and suitable to teachers' needs. The other two mentioned that it has to be accessed by teachers in the entire world, and the last teacher said that it should be the place where to discuss ideas and ways to promote stimulating learning environments.

Two teachers said they would *use the platform* to communicate better, to post and record lessons. The other two said they would interact with others, create categories (like tests, exams and so on) and to check students in real time.

As far as their *professional development* is concerned, the most important aspects that contribute to it are attending training courses, seminars and workshops for three teachers. For the other one relationships with colleagues, with students, openness to new and involvement in daily activities are the most important.

They see an *ideal workshop for managing knowledge or professional development* as one which should focus on things that are possible, not on things that just sound great. It should focus on things teachers can do or they did in the past and on things that require minimal financial resources (Annex 5, 6).

Taking all the answers into account, I could confirm that universitary studies are not enough for teachers, they need to continually take part in courses to improve their teaching practices, to adapt to each class' needs and characteristics. Teachers are in a continuous process of acquiring, sharing and applying knowledge from individual studies, from methodology books or from collective study and meetings or discussions, may they be face-to-face or online. Teachers need to learn constanly and discuss the daily issues they encounter. They can better deal with issues collectively, but there are some other problems that they cannot always solve regarding curriculum, which is not always suited to the age and level of understanding of a student. They find some topics challenging to teach and they feel an ongoing need to reform and improve their teaching methods. They should be provided with the environment and conditions to improve their teaching practices outside the class, and this exactly the focus of the last chapter.

5. Final Solution

This chapter deals with identifying elements and proposing a knowledge management strategy together with a prototype of Edu Moodle online platform. The proposed strategy includes literature suggestions, as well as suggested ways to follow for my high school, from my knowledge and experience as a teacher, and from data collected in interviews with the principal and teachers. I often shift between suggestions from literature and suggestions from my expertise or from interviews.

I also need to clarify that the strategy consists of five stages. The first two have already been done so far, and the last three are going to be implemented in the near future, which is the beginning of the next school year.

5.1. Knowledge Management strategy proposal

I have started to create the knowledge management strategy by making use of my domain knowledge as an English teacher. I have brought my experience, domain knowledge and personal perspectives on education to help teachers develop social abilities and positive attitudes to cope with daily issues, to keep them up-to-date with the news, to achieve the results they want, contributing to their professional development. The starting point of using my experience and

domain knowledge in the dissertation has been the example of Ann Alder, the researcher who used her previous experience in implementing change management and in creating training programmes (Alder, 2010)

I have built a store of personal and peers' experience, information and knowledge, understandings, practical foundations and methodological aspects, and so on, and at this point I got a new modality of perceiving the situation and a new way of taking action.

The present knowledge management strategy has been designed starting from data collected during interviews with the principal of the high school and the teachers working there in the language and communication department. I have gathered teachers' needs and I have identified component elements which have been developed in activities performed by the high school's employees that use knowledge to improve their abilities, attitudes, decisions and relationships for enhancing collective performance. The overall objective has been to support teachers' professional development and to design a prototype of an Edu Moodle online platform which assist the strategy.

The present strategy is illustrated in the figure below:

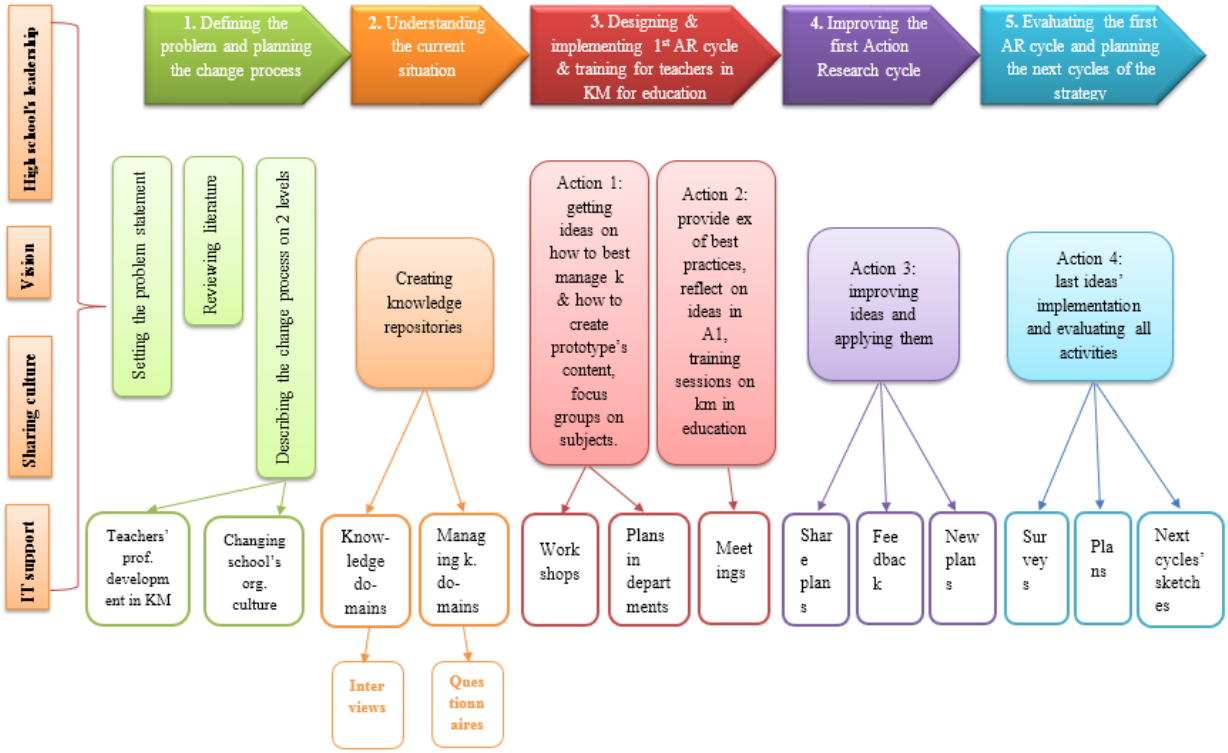


Figure 13. Knowledge Management Strategy Proposal

I have started to design the knowledge management strategy by outlining four key elements: *high school's leadership*, *vision*, *sharing culture* and *IT support* (Cheng, 2015).

For the first element, *high school's leadership*, the interview with the principal and the discussions with her have been of great relevance for the strategy. This is because we could together create the conditions for an environment which supports and encourages teachers to share knowledge. We planned a meeting in September with all teachers in the high school to inform them about the characteristics of knowledge management in education, the benefits and reasons of implementing it, and the changes and the way the principal decided to enable knowledge transfer by changing the annual evaluation form for teachers and by giving them scores if they prove to be committed to knowledge management. All teachers will be informed of knowledge management practices and of how it can be of great benefit to their teaching and learning.

The second element, *vision*, has been firstly brought to light by the dialogue I had with the principal and the teachers working in the same department and it can be further created and modified after the meeting from September. It has been established the fact that the high school has to become one which constructs knowledge and improves teachers' learning and teaching skills by using knowledge management.

The third element, *sharing culture*, has determined the way high school is capable of motivating employees to use information, to share knowledge regarding learning and teaching practices with peers. The adopted model for cultural change help teachers develop a collective learning culture.

To be able to implement the knowledge management strategy and to get benefits from it, demands an organizational change in the high school. Thus, Burnes' Action Research with its cyclical stages (plan, act, observe, reflect and take action) will be implemented. I have realized that to change the behaviour of the teachers is not an easy task, and cannot be done individually, and that is why I decided to bring the change from the top. I have discussed with the principal of the high school and we decided that it would be a good idea to motivate teachers to change, and the best way to do this was to change the annual evaluation form and to give teacher special scores if they take action regarding change. There will also be some meetings with all the teachers where the benefits of knowledge management will be presented and hopefully all of them will understand that change is necessary and they have to take some steps and move toward it.

Teachers will firstly be motivated to go through the entire process as soon as they will hear the news regarding the annual evaluation form. Then they will soon understand the process of managing knowledge and they will see the benefits of being involved in all activities of the strategy. They will learn to work smarter, they will develop their knowledge management competences, they will discover the relevance of the activities they are involved in and they will see they are relevant for their needs and interests.

The fourth element, *IT support*, has established high school's ICT facilities (the number of labs, computers, laptops, projectors) which are going to support knowledge sharing processes and allow using Edu Moodle online platform.

The knowledge management strategy cannot succeed without IT support. Thus, technology provides support with two kinds of services, *infrastructure* and *knowledge services* (Chua, 2004).

The *infrastructure services*, which corresponds to Edu Moodle online platform and its features which ease the implementation of activities, are divided into *storage* and *communication services* (Chua, 2004).

The first main infrastructure service is the *storage* one. The existing knowledge base of teachers, and the newly formed knowledge during the activities mentioned in the strategy will be created and saved in a knowledge repository. The knowledge repository is characterized by content of knowledge (the actual knowledge stored) and structure (the format of the files, its indexing scheme and how are files linked to each other). Thus, the created knowledge repositories will contain plans, drawings, audio or video recordings (Chua, 2004).

The second main infrastructure service is the *communication* one. Technology has enabled communication services, such as communication between teachers which has been carried through file sharing, and cooperation between teachers, which has been realized by forum discussions on Edu Moodle (Chua, 2004).

The *knowledge services* are assisted by technology solutions which ease the achievement of the knowledge management strategy's objectives. Knowledge services comprise and refer to easing the processes of *knowledge creation*, *knowledge sharing* and *knowledge reuse* (Chua, 2004).

Knowledge creation is described first. Teachers create knowledge by discovering and experimenting when they take part in activities such as designing plans to improve teaching and learning and others of a kind. Teachers can create mind maps, they can codify tacit knowledge into guides and instructions and they can express their thoughts using graphical representations. These activities can be supported by text documentation, digital audio and video and some techniques (e.g. summarization) can be used to browse through video documents or to make a collection of searchable images (Chua, 2004).

Knowledge sharing refers to the way knowledge is distributed from one teacher to another. For a better management of the process, collaboration tools are the key. They assist the distribution of knowledge, improve the collaboration among teachers and provide the space (platform) to share knowledge. Teachers' activities and performance can be enhanced by systems as a text-based chat which creates social presence among teachers, giving them more visibility (Chua, 2004).

Knowledge reuse refers to the way teachers acquire knowledge, store, share and use it. Technologies (e.g. intelligent filtering tools) which support the process provide better search

functions, such as collecting information about teachers' needs from the query they submit (Chua, 2004).

I have estimated that the strategy will cover at least two years, it will start from April 2017, but some measures will be taken some time prior to facilitate the determination to knowledge management activities.

Therefore, a *knowledge management committee* has been established to facilitate knowledge sharing in daily practices. It consists of both high school principals, of one Romanian teacher who took part in the interviews, and of me as an English teacher (Cheng, 2015).

The knowledge management strategy is going to be created to answer the overall research question in the problem statement, which is: How to identify the elements and make a knowledge management strategy for getting and sharing knowledge to give teachers the possibility to be informed with the latest news within their field and to work on their professional development? Understanding knowledge management in education, identifying teachers' needs and getting ideas for sketching a prototype of an online platform according to teachers' requirements are three areas of interest which have also been covered.

Consequently, the strategy is built on Collaborative Action Research to manage the knowledge processes and sustain teachers' professional development. It has been necessary to design activities that involve changes in teachers' behaviour, attitude, relationships and knowledge production practices.

The strategy is divided into *five stages* that answer and deal with the research questions.

1. *defining the problem and planning the change process*, which has been achieved by setting the problem statement, reviewing research in the field, shaping key elements (high school's leadership, vision, organizational culture, IT support) and describing the change process on two levels: teachers' professional development in knowledge management and changing the organizational culture of the entire high school (February-March 2017).

2. *understanding the current situation,* which has been achieved by creating knowledge repositories of teachers' knowledge base. (April-September 2017)

I have started to think of and outline *a. what do I need to manage, the knowledge domains*, and *b. how will I manage them* (Cheng, 2015).

a. I have considered the *domains of knowledge* that are of major importance for teachers' development, for getting and sharing knowledge which gives them the opportunity to be informed and up-to-date with the latest news within their field. If the present strategy considers developing teachers' collective learning and teaching skills by involving teachers in various activities, than how to develop teachers' collective learning and teaching abilities and how to carry out data analysis would be the knowledge domains that need to be managed. Research

within the field proved that developing teachers' knowledge management competences and designing a proper infrastructure that assists the processes of managing knowledge are some steps that need to be taken (Cheng, 2015).

Therefore, to be able to develop teachers' collective learning and teaching abilities I have conducted some *interviews* (Annex 4) with the aims of understanding how knowledge is acquired, shared and applied and of increasing teachers' awareness of their own knowledge, of their capability to understand and master cognitive processes, of both revealing and acquiring knowledge about when and how to use particular techniques for learning, teaching or problem solving.

b. The way the knowledge domains need to be managed demands attention, too. To deal with it, teachers' explicit and tacit knowledge will be summarized. Furthermore, Nonaka and Takeuchi's SECI model is going to be applied to investigate and understand how knowledge is obtained, transferred and applied in the high school.

Teachers in the language and communication department at Mircea Eliade possess *explicit knowledge*, such as: curriculum knowledge (which is specific to the subject they teach), knowledge about educational context, values, about students, their background, previous learning experiences or learning styles, so on and so forth (Shulman, 1987).

Teachers also possess *tacit knowledge*, such as general pedagogical knowledge (classroom management methods), pedagogical content knowledge (pedagogy which is adapted to each teacher's own style). Their tacit knowledge base for teaching include a mixture of methods and principles, personal styles, abilities, responsibilities, ethics, experience, infrastructure and a way in which it is communicated (Shulman, 1987). To understand it better, Panahi et al, 2013, emphasize the two aspects of the tacit knowledge base: the cognitive one, which includes intelligence, gut feelings, emotions, creativeness, thoughts and perspectives, and the technical one, which contains abilities, expertise, best practices, know-how and hands-on experience (Panahi, Watson and Partridge, 2013).

The following quotes are relevant:

Interview person 1 mentioned: "Tacit knowledge helps us to have more interesting classes, helps us to get closer to the child. Firstly, it helps you to find the gaps and barriers in the act of learning, as opposed to explicit knowledge that can be used by a robot, right?"

Interview person 4 said: "The dimension of tacit knowledge shapes the way in which we perceive the world around us. In French literature classes perceptions, ideals, values, emotions and mental patterns are ingrained in us and make tacit knowledge' productivity to be applicable in most of my classes."

The SECI model explains how knowledge is created, transferred an applied in the interaction between explicit and tacit knowledge. I have created a *questionnaire* (Annex 8) to catch the four stages of the process. To highlight the process of *socialization*, teachers will be asked to reflect on their informal learning from experience sharing and exchanges about the teaching process. They will be asked questions like what do they share about teaching in workshops, conferences or other interactive activities, how much do they share, why do they do it or what reasons do they have not to do it. They will also be asked how they can develop the 21st century skills of their students to provide qualitative education and to better prepare them for the future career.

To emphasize the process of *externalization*, teachers have to suppose that they have just finished a course on Introduction to Information Technology, or they just have to remember what the course was about for those who took it some time ago, where they have found creative and constructive ways to integrate technology in the classroom and they could sharpen their skills and expertise to ensure a quality education. They have to present their learning experience in a report or written material with the aim of extracting their explicit knowledge which will be stored for later use.

To outline the process of *combination*, teachers have to imagine that they are engaged in a collaborative activity and they have to work on a methodological problem solving task. They have to write an instructional guide about: What are the best ways to enhance students' motivation? They have to emphasize the causes that trigger the desire to learn; to describe how they provoke interest and involvement in their subject when students are not interested in in and to give examples of how they encourage students by deed or words (i.e. how they choose activities, topics, their attitude to class participation, how their own behaviour and enthusiasm may be sources of inspiration, or how their own conscientiousness and humour may influence students). Their knowledge will be codified to documents and they will be shared later to all teachers as guidelines and examples of teaching resources for professional development.

To stress the process of *internalization*, teachers will create tacit knowledge through learning by doing. Teachers will be asked to read three online articles about working with students at different levels. Then they will be asked to plan an activity for teaching writing for exams, involving students who are at different levels. Teachers should mention how they deal with the situation, what materials do they use (if they are different materials or the same materials but students do different tasks), and how is the activity organized (group-work, pair or individually).

During the *second stage*, understanding the current situation, knowledge repositories of teachers' knowledge base have been created. A lot of relevant aspects for teachers' professional development have been covered, but I will give only three examples here. They suggested *ways to share tacit knowledge* such as: interview person 2: "I believe that seminars and conferences are where you can pick up some of the latest developments and useful ideas for teaching."

Teachers explained the *way they manage knowledge* in present: interview person 1: "We acquire and share knowledge by taking part in training courses, in expert/ specialized meetings, national and international symposiums, and we share very much in the same way, but in class, too."

Teachers have also suggested *ways to improve collective learning*: interview person 1: "I think that workshops would help us. We are familiar with the rest of courses, but with workshop we are not, and then it would be something new."

3. *designing and implementing the first Action Research cycle and training for teachers in knowledge management for education*, which is illustrated in a couple of activities. (October 2017- March 2018)

Action 1 (October-December 2017) - getting ideas on how to best manage knowledge and how to create the online platform's content according to teachers' needs.

Action 1 will cover a period of two months, during which, the teachers will cooperate on finding ways to best manage knowledge and to create categories of content for the online platform. First of all, the high school teachers will be divided into focus groups, according to the subject they teach and the department they belong to. Teachers will take part in one hour workshops every week, where they will be involved in a couple of activities.

Teachers will think of their needs as teachers and they will be asked to design mind maps of categories of content they would like to find on the online platform they are going to use. Prior to this, they will be given the log in details on the high school's Edu Moodle online platform. They will collaborate and work on customizing content, resources and programmes according to their needs and interests.

They will take part in brainstorming sessions where they will talk about the teaching approaches they are using for the time being; they will be motivated to tell stories and give examples of teaching methods that worked and how they applied it; they will collectively work on ways to improve teaching and learning, to bring about innovation and change, to better collect, use and share knowledge in their daily activities.

During the last workshops of the Action 1, the last tasks of teachers will be to design two plans of the whole department, which will include activities for all subjects in the department and they will present ways to improve teaching and learning and they will implement modern teaching practices. Teachers will present a 5 or 10 minutes activity, where they come up with solutions to optimize teachers' learning and teaching capabilities and another one where they demonstrate how they create better learning environments to prepare students for the 21st century workforce, developing their team-building, critical-thinking, problem-solving and multitasking abilities.

Action 2 (January- March 2018) is reflecting on ideas from the Action 1 and providing examples of best practices together with training sessions on knowledge management in education.

Action 2 will cover a period of two to three months.

Teachers will be provided with other high school's examples of the way they developed content on the same online platform, as well as other platforms and websites used by other schools. They will be asked to decide if they will change some categories and how they will change them, and what else they would like to add. Later on, teachers will take part in some training sessions on knowledge management in education.

Teachers will take part in meetings where they will list materials, tools and resources that help them achieve effective teaching and learning, then they will be asked to share them on Edu Moodle platform.

Teachers will work together and reflect on the ideas they come up during Action 1 (on improving teaching and learning and ways to better manage knowledge), they will engage in dialogues and discussions which leads to their lifelong development and growth.

4. *improving the first Action Research cycle* is going to be illustrated in the activities below. (April- May 2018)

Action 3 is improving ideas and applying them.

Teachers will be asked to share their plans on improving teaching and learning they have designed in their department and they will have access to the plans of other departments. They have to give individual feedback to the other plans and to provide further suggestions.

They will further reflect on the suggestions they have received for their plan, they will analyze them and they will produce new plans. They will use the knowledge they have created and distributed during Action 1 and Action 2 and they will apply it in the form of new plans for improving their teaching capabilities.

5. *evaluating the first Action Research cycle and planning the next cycles of the strategy*

Action 4 (June-August 2018) is the last ideas' implementation and evaluating them.

During Action 4, teachers will create individual plans for improving their competences, based on the activities they have been involved in the whole process. In the end, they will be asked to answer a survey where they will evaluate all the activities they had taken part in. Furthermore, the next cycles of the strategy will be developed together with all the teachers in the high school.

Teachers' learning will arise from their social participation in the activities they will take part in, as well as from putting into practice the knowledge they acquired, shared an applied. They will realize the role they have and they will understand that they are knowledge producers who constantly develop abilities, test ideas, learn from mistakes and adapt newly formed knowledge to their own style.

5.2. Prototype for Edu Moodle Platform

I have criticized my initial understanding of implementing a knowledge management strategy, of teachers' professional development, constructing a new description by adding new knowledge from the interviews with the principal, teachers and applying the new description in making a prototype of an online platform.

I started the prototype by analyzing the way the platform looks like for other schools. Then I had been provided with all the administrative and financial details of the high school, such as the fiscal identification numbers and others. Having all these details I could contact the owners of the platform and I could create an account, adding my high school on the national online platform.

After creating the account on Edu Moodle Romania platform, I am able to develop the content of the page according to teachers' requirements. All teachers mentioned they would like to find the following categories of content: courses, news, conferences, contact, about, forum, teachers, students, parents.

Interview person 1: "Courses, news, catalogues, teaching materials catalogues would be great because we need them, I am not decided about forums. Teaching materials catalogues and news would be the best. Because we are somehow experienced, we forget what is new and then news would help us, and news can be emphasized somehow to be more visible."

Interview person 2: "I would like to find information and details about courses and conferences. A forum will be also an inviting environment to share new ideas and recommend suggestions on teaching. I would also like about, news, contact."

Interview person 3: "I would like to find information about: About us; teachers (can include events, conferences, courses and programmes, online resources, school network, cooperation with peers); news; forum; students (contests, resources (textbooks, tests), projects); parents; contact us."

All teachers need the platform for their professional development, they need it to better manage knowledge, to communicate with peers, parents and they added they need information updated in real time and clear organograms of websites. They need it to be relevant, easily accessible, up-to-date and suitable to their needs.

Interview person 1: "I do not know if I need something new, as I need a clearer organizational chart, an organogram of the site. Edu website is poorly designed, that of the regional inspectorate is ok, it is more visible. Maybe information should be more quickly updated, or in real time, that's the word, to be updated in real time."

The way they ranked the categories of content they need can be seen below:

Interview person 1: “1-teaching materials catalogues, 2-courses, 3 news, 4 activities, 5 maybe something for parents, 6 exams, 9 about- just for students, for teachers is not necessary. And I don’t find contact relevant, you can go to school.”

Interview person 2: “1 – for communicating with parents 2 – for communicating with peers 3 – for courses 4- conferences, 5 for forum, 6 for about, 7 for news, 8 for contact.”

Interview person 3: “1 – about us; 2-teachers; 3-news; 4-forum; 5-students; 6- parents; 7-contact us.”

Interview person 4: “1 – news 2- professional development 3 for teachers 4 -for students 5- for parents 6 -forum 7- about 8 -contact 9 resources.” (Annex 5)

Therefore, I tried to extract all details of teachers’ answers mentioned in the interviews about the way they need the platform to be, their needs and requirements, the way they ranked the categories of content (Annex 9). I combined all these findings with suggestions from literature within the field and with my domain knowledge and experience, and I designed the following prototype:

Figure 14. Edu Moodle Platform Prototype for Mircea Eliade High School

I have considered the fact that prototyping does not necessary demand a working software, it can be in a paper-based form or blueprint form which do not require working pieces of software. Therefore, I designed mine in Axure, and I did not implement functional features, buttons or interactions (Preece, Sharp & Rogers 2015).

6. Summary

6.1. Reflections

Having reached the end of the dissertation, I consider it necessary to remember and reflect upon likely causes of inaccuracies and aspects of theoretical and methodical frameworks I could have differently addressed.

There may be some inaccuracies in the data-collection methods. I started from the interview with the high school's principal where we discussed how can we implement knowledge management in our high school. We found some solutions to adopt it, but it would have been relevant to include some questions from the interview guide with the teachers. It would have been at least interesting and relevant for the dissertation, but, because of the principal's busy schedule, I couldn't do a second interview. What is more, I noticed that the circumstances and the covered aspects of the first interview were different from the last. That is why all interviews are not the same, I added some questions along the way. Some inaccuracies may come from the fact that all interviews have been made on phone, or others may come from the hour of day when the interview has been recorded.

I had a good communication with teachers, especially because they are from the same department as me. This can be observed in each school wherever it may be, and is also proved by literature in the field, that teachers of the same subject are more prone to work better than teachers teaching different subjects.

All the teachers who took part in the interview are from language and communication department. They are all experienced teachers, with ten or more than ten years of teaching. One of them is not experienced with online platforms, and her answers may be not so relevant for the prototype. For the others, who are already used to online platforms from courses they attended, it has been easier to think of categories of content they need and to structure and organize it accordingly.

Nevertheless, my experience as an English teacher helped me a lot, together with my information architecture domain knowledge. I could combine these two, focusing on and diagnosing the problems in education and struggling to trigger solutions by building a proper knowledge

management strategy for my high school. I have tried to consider my experience and the other teachers' experience equal and I took into account all their requirements and needs while prototyping the online platform. I tried to avoid making an eye-catching prototype of Edu Moodle. Instead, I offered clear and consistent categories of content, and a proper structure suitable to teachers' needs.

6.2. Discussion

On the whole, I can say that I have gathered valuable data from the interviews and I could come up with a valuable knowledge management strategy. But some steps could have been further taken.

Furthermore, there is still room for improvement or for continuing the work. It would have been great if some participatory design workshops would have been organized to give teachers the chance to design some mock-ups of the platform they would like to use, to explain the reasons they had to build the platform the way they did. Even if the interviews are used in a kind of participatory design way, with the aim of being user driven and to have a result dictated by users, some participatory design workshops would have added more value to the dissertation. What is more, it would be a great idea to further test and evaluate the Axure prototype with all the teachers in the high school to see if it suits teachers' requirements and if they understand the platform. If they come up with changes, they can be implemented and the test can be repeated for the last time.

I have decided to have a number of five interviews because this is the suitable number of needed users suggested by literature (Rubin & Chisnell, 2008). It is argued that four to five participants are enough to expose a vast majority of encountered issues. The qualitative data produced is a strong argument in building the knowledge management strategy and the platform's prototype. Users' needs and wishes are scientifically accompanied by used theoretical frameworks and methods. I wanted to get valid and reliable data, and I can say that I achieved this, the data I gathered from the interviews is consistent, meaningful, I got the same results from the teachers who addressed and observed the same issues, which described accurately the situations.

I believe that I could add value to the present dissertation by bringing my own experience in education, I could build a better strategy by knowing internal aspects in education and in the institution. What is more, I could also suggest better uses of technology, both in the present and in the future. I aimed to help teachers be more competent by developing their lifelong learning skills, by enhancing their professional growth and by making them realize their role as knowledge producers in an ongoing improvement of teaching methods and techniques.

Looking backwards and reconsidering the whole process, I have had the opportunity to gain and use knowledge of methods and theories of information architecture in practice. Information architecture theory has guided my work throughout the entire process of writing my dissertation. I have strengthened and expanded my capabilities of dealing with and assessing practical issues related to methods for gathering data, for analyzing the requirements of users and for building a strategy and a prototype accordingly.

6.3. Conclusion

How to identify the elements and make a knowledge management strategy to sustain teachers' professional development by a proper management and dissemination of knowledge? What is the understanding of knowledge management in general and in the education field? How to identify management and teachers' needs? How to get ideas for sketching a prototype of an online platform?

The present knowledge management strategy has been built to answer these research questions. I have always been questioning and judging my experience as a teacher, my information architecture knowledge and my perceptions and views on education along the way. Doing so, I struggled to build a strategy to help teachers develop their abilities and professional growth, to work smarter and more efficient and to gain benefits from implementing knowledge management.

I tried to answer these research questions first by reviewing literature within the field and understanding the process of knowledge management, by outlining models, ways and tools to promote knowledge management and bring about cultural change. Secondly, I reviewed the way in which knowledge management contributes to education, and the steps that have been taken to implement it, to nurture teachers' knowledge management competences and to innovate courses for teachers.

Afterwards, I continued to solve the problem set by collecting data, interviewing the principal and teachers working in the high school, getting insight about the way teachers learn, acquire, share, apply knowledge and teaching methods, understanding the situation better and trying to change it. I have criticized teachers' understandings of their professional growth, of how can it be developed, I have analyzed their suggestions of ideal trainings and I have tried to add everything in the present strategy.

Therefore, teachers' professional development can be sustained by a proper management of knowledge, by understanding the current situation, the way teachers manage knowledge and the way they would like to do it and see it ideal, by providing the perfect environment for teachers' professional growth and last but not least, by building trainings suitable to what teachers' need

and find relevant. The prototype of Edu Moodle online platform has been sketched in the interviews with teachers, where they suggested the categories of content they would like to find, they ranked them and they suggested how the prototype should be structured and should suit their needs.

The research questions find their answers in the present strategy, which includes five stages: defining the problem and planning the change process; understanding the current situation; designing and implementing the first Action Research cycle and teachers' training in knowledge management for education; improving the first Action Research cycle and evaluating the first Action Research cycle and planning the next cycles of the strategy.

A knowledge management strategy cannot be designed without involving users, it should be designed focusing on the needs, requirements and interests of strategy's users, because they are the ones who keep it useful, relevant and suitable to their expectations.

7. Literature List

Alder, A., (2010). *Pattern making, pattern breaking. Using past experience and new behaviour in training, education and change management*. Gower Publishing Limited.

Ashkanasy, N. M., Wilderom, C. P. M., & Peterson, M. F. (2011). *The handbook of Organizational Culture and Climate*. SAGE publications, Inc

Baek, S., Liebowitz, J., Prasad, S.Y., & Granger, M. (1999). *Intelligent agents for knowledge management - Toward intelligent web-based collaboration within virtual teams.* In Knowledge management handbook. Ed. J. Liebowitz. Boca Raton: CRC Press. 11: III:23.

Bender, S., & Fish, A. (2000). The transfer of knowledge and the retention of expertise: the continuing need for global assig*nments.* Journal of Knowledge Management, Vol 4. No 2. pp. 125-137, MCB University Press

Bergeron, B. (2003). *Essentials of knowledge management*. John Wiley and Sons, Inc.

Bhatt, G.D. (2000). *Organizing knowledge in the knowledge development cycle*. Journal of Knowledge Management, Vol 4. No 1. pp. 15-26, MCB University Press

Bjørner, T. (2015). *Qualitative Methods for Consumer Research (1st edition).* Denmark, Copenhagen: Hans Reitzels Forlag.

Bouthillier, F., & Shearer, K., (2002). *Understanding knowledge management and information management: the need for an empirical perspective*. Graduate School of Library and Information Studies. McGill University Montreal, Canada. Information Research, Vol. 8 No. 1

Brinkmann, S. & Kvale, S. (2015). *InterViews: Learning the Craft of Qualitative Research Interviewing* (3 rd edition). United State of America, Thousand Oaks, CA: SAGE publications.

Brown, J. P., Massey, A.P. & Boling. E. (2005). *Evaluation of knowledge management systems: Insights form the study of a technical support knowledge base. Knowledge management research and practice.* 3(2): 49-59

Burnes, (2004). *Kurt Lewin and the Planned Approach to Change: A Re-appraisal*. Journal of Management Studies 41:6 September 2004

Cheng, E. C. K. (2015). *Knowledge Management for School Education*. Springer

Chua, A. (2004). *Knowledge management system architecture: a bridge between KM consultants and technologists*. International Journal of Information Management 24, 87-98

Clutterbuck, D. (2001). *Coaching and mentoring at the top, for Peer Resources*. Retrieved from www.mentors.ca

Creswell, J.W. (2014). *Research Design. Qualitative, Quantitative and Mixed Methods Approaches.* United State of America, Thousand Oaks, CA: Sage Publications.

Dalkir, (2011). *Knowledge Management in Theory and Practice.* MIT Press

Dalkir, K. (2005). *Knowledge Management in Theory and Practice.* Elsevier Ink

Davis, J. (2006). *Knowledge Management. Organizational and Technological Dimensions*. Eswaran Subrahmanian Art Westerberg Editors. Physica-Verlag A Springer Company

Detlor, B. (2010). *Information Management*. Eds. Bates & Maack, Encyclopedia of Library and Information Sciences, 3. ed. London: Routledge (pp. 2445-2451)

Drucker, P.F., (2001). *The information executives need today*. In *The essential Drucker. 95-111*. Oxford: Butterworth-Heinemann.

Drucker, P.F., (1969). *The age of discontinuity.* Revised. New Jersey: Transaction Publishers

Davenport, T.H. & Prusak, L., (1998). *Working knowledge: How organizations manage what they know*. Boston: Harvard Business School Press.

Evans, M. M., Dalkir, K., & Bidian, C. (2014). *A Holistic View of the Knowledge Life Cycle: The Knowledge Management Cycle (KMC) Model*. The Electronic Journal of Knowledge Management Volume 12 Issue 2 pp 091-103

Ghani, S. R. (2009). *Knowledge Management: Tools and Techniques*. Desidoc, Journal of Library & Information Technology, Vol. 29, No. 6, November 2009, pp. 33-38

Hobohm, H.C., (2004). *Knowledge Management. Libraries and Librarians. Taking up the Challenge*. K G Saur, IFLA Publication 108, Munchen

Ichijo, K.,Nonaka, I., (2007). *Knowledge creation and management: new challenges for managers*. Oxford University Press

Kelly, D. (2009). *Methods for evaluating interactive information retrieval systems with users.* Foundations and Trends in Information Retrieval, vol.3 (12) USA, Hannover, MA: Publishers Inc.

Khakwani, S., Azhar, M. S., & Mateen, M. M. (2012). *Coaching and Mentoring for enhanced learning of human resources in organizations: (Rapid multiplication of workplace learning to improve individual performance).* Journal of Educational and Social Research Vol. 2 (1)

Kulkarni, S. (2013). *Knowledge management in education sector: issues and challenges*. Review of Knowledge Management, Vol. 3, No. 1/2

Leedy, P. D., & Ormrod, J. E. (2005). *Practical research: planning and design* (8th ed). Upper Saddle River, N.J: Prentice Hall.

McInerney, C. R., & Koenig, M. E. D., (2011). *Knowledge Management (KM)Processes in Organizations Theoretical Foundations and Practice*. Morgan & Claypool Publishers

Nonaka, I., Toyama, R., & Konno, N. (2000). *SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation*. Long Range Planning 33, 5-34

Nonaka, I., (1991). *The knowledge creating company*. Harvard business review. Nov-Dec 1991: 96- 104.

OECD, (2000). *Knowledge Management in the Learning Society*. Centre for Educational Research and Innovation

Panahi, P.; Watson, J. and Partridge, H. (2013) *Towards tacit knowledge sharing over social web tools. Journal of Knowledge Management*, Vol. 17, No 3. pp. 379-397. Emerald Group Publishing Limited

Polanyi, M., (1967). *The tacit dimension.* London: Routledge & Paul K.

Preece, J., Sharp, Helen, & Rogers, Yvonne. (2015). *Interaction Design: Beyond Human-Computer Interaction* (4.th ed.). Hoboken NJ: John Wiley & Sons.

Rao, M. (2005). *Knowledge management tools and techniques*. *Practitioners and experts evaluate KM solutions*. Elsevier Inc.

Resmini, A., & SpringerLink. (2014). *Reframing Information Architecture*. Human-Computer Interaction Series. Cham: Springer International Publishing

Rosenfeld, L., Morville, Peter & Arango, Jorge. (2015). *Information Architecture for the World Wide Web* (Fourth edition / Louis Rosenfeld, Peter Morville, Jorge Arango. ed.).

Rubin, J. & Chisnell, D. (2008). *Handbook of Usability Testing (2nd ed.) – How to Plan, Design, and Conduct Effective Tests*. United States of America, Indianapolis, IN: Wiley Publishing.

Schein, E. H., (2004). *Organizational culture and leadership*. Third Edition. Jossey-Bass A Wiley Imprint

Schön, D. A., (1983). *The reflective practitioner- how professionals think in action*. Basic Books

Scott, Peter Yih-Tong Sun John L., (2005). *An investigation of barriers to knowledge transfer*. Journal of Knowledge Management, Vol. 9 Iss 2 pp. 75 - 90

Shulman, L. (1987). *Knowledge and Teaching: Foundations of the New Reform*. Harvard Educational Review: April 1987, Vol. 57, No. 1, pp. 1-23.

Tan, S.C., So, H.J., & Yeo, J. (2014). *Knowledge Creation in Education*. Springer Science + Business Media Singapore

Widén-Wulff, G. (2007). *Challenges of Knowledge Sharing in Practice: a Social Approach.* 1st Edition. Chandos Publishing

Zhao, J. (2010). *School knowledge management framework and strategies: The new perspective on teacher professional development*. *Computers in Human Behavior, 26*(2), 168–175.

Annexes:

Annex 1: Interview guide for the interview with the principal of “Mircea Eliade” high school for implementing the knowledge management strategy

Annex 2: Transcription and translation of the interview the principal of “Mircea Eliade” high school

Annex 3: Interview guide for the interview with teachers of “Mircea Eliade” high school for implementing the knowledge management strategy

Annex 4: Transcription of the interviews with teachers of “Mircea Eliade” high school

Annex 5: Meaning condensation of the interviews

Annex 6: Meaning condensation graphs

Annex 7: Non-Disclosure Agreement

Annex 8: SECI questionnaire

Annex 9: Final Solution: Prototype for Edu Moodle Romania online platform

Annex 10: Links to Audio Files

Annex 1: Interview Guide for the Interview the principal of "Mircea Eliade" high school for implementing the knowledge management strategy

Research questions	Interview questions	Why do we want to know this?
Who is the interviewed person?	The principal of "Mircea Eliade" high school	To know the person who we are interviewing.
How is information disseminated by ministry, inspectorates and principals?	1.I am interested in the way information is coming from the Ministry of Education towards each and every teacher who is not Head of Department or Curricular Area. Is information coming first at the Regional Inspectorate level and then at meetings with school's principals or how else? Then how is it disseminated towards teachers? 2. How often do meetings with principals take place and how often do you organize school boards? 3. If teachers miss school board, how do they find out what was the school board about? 4. I've heard there is a wish to eliminate regional inspectorates to give schools and principals more power and autonomy. Will this be possible?	To understand how information is disseminated towards teachers.
Which is the principal's perspective regarding the knowledge management process?	5. How do teachers acquire and share knowledge in the present? How do they collaborate and cooperate with peers? How are resources shared among teachers? 6. What do you think teachers need to share? *(e.g. Tacit (pedagogical knowledge), explicit knowledge (curriculum knowledge))* 7. You evaluate teachers periodically. Do you see improvements in their working practices after the completion of different activities?	To find out ways to improve managing knowledge within the school.
Which is the principal's perspective regarding online platforms?	8. What do you think about disseminating information through online platforms? Are they in use in the present? Do you think teachers need them to build their professional development? 9. Have you heard about Edu Moodle Romania? Do you think it is used or it will be used in the future if it is a known brand of online platforms throughout the world? 10. I created an account for our school on Edu Moodle and I will work on selecting, redesigning and building the right categories of information for teachers in our school. There will be categories such as professional development, courses, news, online catalogues, forums and anything else suits the needs of teachers. How would you motivate teachers in our school to use this platform?	To find out ways to improve using online platforms.
Which is the principal's perspective regarding	11. How would you see a perfect medium for sharing knowledge, expertise and resources*? (e.g. to be suitable to what teachers need, to have relevant information, to be easily accessible)* And what categories of information should it include? (e.g. resources, forum,	To find out ways to optimize the use of ICT in

ICT and ideal mediums for knowledge sharing.	chat, statistics) 12. Are teachers using ICT in the classroom? How often do you think they use it? Sometimes the lack of infrastructure acts as a barrier and prevents teachers from using technology. Are there any other examples such this? Maybe lack of motivation from teachers or things like these. 13. Do you think that teachers will be willing to use online platforms in the future? Why/ why not? *(if they know that they will find the information they need?)*	classroom to share knowledge.
Which is the principal's perspective regarding professional development?	14. What other things are contributing to the professional development of teachers?	To find out ways to improve teachers' growth and development.
Which is the principal's perspective regarding enablers to use online platforms?	15. What things can act as enablers to motivate teachers to use online platforms? *(time spent preparing lessons)* 16. Do you think teachers will trust this online platform to share their experience and expertise? Why/ why not? *(maybe they see other teachers and friends using it and they will trust it)*	To find out which things improve teachers' motivation to share online.

Annex 2: Transcription and translation of the interview the principal of "Mircea Eliade" high school

Interview questions	Interview answers
1.I am interested in the way information is coming from the Ministry of Education towards each and every teacher who is not Head of Department or Curricular Area. Is information coming first at the Regional Inspectorate level and then at meetings with school's principals or how else? Then how is it disseminated towards teachers? 2. How often do meetings with principals take place and how often do you organize school boards? 3. If teachers miss school board, how do they find out what was the school board about? 4. I've heard there is a wish to eliminate regional inspectorates to give schools and principals more power and autonomy. Will this be possible?	1. Information is coming on school's email. School's secretary is in charge of sending emails to all teachers. Now we have a yahoo group of all teachers in the high school and all news from the regional inspectorate are posted there. 2. Meetings of principals are: - one of analyzing the last semester's activity - a "methodical circle" with the principals on each semester where we are informed and updated with all the news - and meetings close to the summer national exam in summer where the methodology is processed - rarely, when there are urgent issues School councils are held every month with different themes. Or when there are urgencies and we have important things to communicate! 3. Usually we write on the whiteboard the summary of the board. Or we leave the notebook with records in teachers' meeting room. The teachers who want read it, and then they sign it. 4. I don't think so. Autonomy is just on paper! You are responsible for everything, but you have to do what you're told to!
5. How do teachers acquire and share knowledge in the present? How do they collaborate and cooperate with peers? How are resources shared among teachers? 6. What do you think teachers need to share? *(e.g. Tacit (pedagogical knowledge), explicit knowledge (curriculum knowledge))* 7. You evaluate teachers periodically. Do you see improvements in their working practices after the completion of different activities?	5. For the interested teachers, the high school's meeting room is the "engine" of each school. This is the place where teachers find everything. Teachers cooperate according to sympathies, friends and subcultures. There is that of primary school teachers and that of secondary and high school teachers. 6. Teachers should share all the aspects related to the educational system. Communication in a school is the foremost and primordial factor. 7. Definitely. This is all about teaching improvement, by passing exams, teaching

	ranks or courses. Teachers who are passionate about their job do it. But there are also individual cases of teachers who come to school just to have a job. But they can be spotted immediately.
8. What do you think about disseminating information through online platforms? Are they in use in the present? Do you think teachers need them to build their professional development? 9. Have you heard about Edu Moodle Romania? Do you think it is used or it will be used in the future if it is a known brand of online platforms throughout the world? 10. I created an account for our school on Edu Moodle and I will work on selecting, redesigning and building the right categories of information for teachers in our school. There will be categories such as professional development, courses, news, online catalogues, forums and anything else suits the needs of teachers. How would you motivate teachers in our school to use this platform?	8. These platforms are very good. I think that in the near the future we will work more in this way! 9. I heard some things, but most of them I found from you. Of course it will! 10. Teachers can be motivated by receiving scores when they access the account or complete different tasks and activities. Another way to motivate them is by changing the annual evaluation form and giving them scores when they do so.
11. How would you see a perfect medium for sharing knowledge, expertise and resources*? (e.g. to be suitable to what teachers need, to have relevant information, to be easily accessible)* And what categories of information should it include? (e.g. resources, forum, chat, statistics) 12. Are teachers using ICT in the classroom? How often do you think they use it? Sometimes the lack of infrastructure acts as a barrier and prevents teachers from using technology. Are there any other examples such this? Maybe lack of motivation from teachers or things like these. 13. Do you think that teachers will be willing to use online platforms in the future? Why/ why not? *(if they know that they will find the information they need?)*	11. Trained people to work with responsibility. To contain all information, starting from general things to news. To be interactive, I mean to have the possibility to ask specific questions and receive specific answers. 12. Unfortunately, technology is down in almost all schools. We hear all the time that the government does not have money for this. Computers from the labs are from 2003. They are often repaired. Sometimes some laptops are bought. Or a photocopying machine. And that's it! 13. I am sure! It is the fastest means of communication!
14. What other things are contributing to the professional development of teachers?	14. Experience exchanges. You always have something to learn!
15. What things can act as enablers to motivate teachers to use online platforms? *(time spent preparing lessons)* 16. Do you think teachers will trust this online platform to share their experience and expertise? Why/ why not? *(maybe they see other teachers and friends using it and they will trust it)*	15. Maybe the fact that you can share your experience, points of view, you can see other things, and how one can work differently. 16. I think that the online platform will be successful for those wanting to improve their teaching and those who are open-minded.

Annex 3: Interview guide for the interview with teachers of "Mircea Eliade" high school for implementing the knowledge management strategy

- Start with a discussion with all the teachers in the high school where they are informed about the conditions enhanced by the principal to foster knowledge management, the characteristics and benefits of knowledge management in education, and the important news from the annual evaluation form

Research Questions	**Interview Questions**	**The reasons I want to know this**
Who is the interview person?	1. Please mention your name, the subject you teach and the number of years of work experience that you have.	To know who the interview person is.
What kind of knowledge do teachers possess?	I will give some examples of *explicit* (content knowledge, curriculum knowledge, knowledge of students and their characteristics, knowledge of educational context and knowledge of educational values) and *tacit knowledge* (general pedagogical knowledge and pedagogical content knowledge). 2.a. Starting from these, can you mention what forms your knowledge base for teaching? Or supposing you have to teach grammar, taking adjectives for example, how do you do that? Some teachers prefer to do it traditionally, presenting the rules of form and of use and giving examples. Other teachers expose students to adjectives (input) and expect students to produce (output), or expect students to work out the rules themselves in discovery learning activities, or they prefer grammar translation activities. All these practical approaches differ because no class of students is the same, and teachers have to take into account students' age, needs, interests, goals, previous learning experience or available resources. 2.b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?	-To have a general understanding of teachers' knowledge base. -To develop a commitment to knowledge management.
Describe the role of tacit knowledge in teaching.	3. a. Taking the previous example as point of departure, are you aware of the fact that you teach with your tacit knowledge? b. Do you see tacit knowledge a tool for effective teaching and learning? c. Does your institution organize trainings to assist you improve your tacit knowledge? d. Is there a proper infrastructure to structure tacit knowledge among teachers? e. How would you see the best way to share tacit knowledge?	To understand the role of tacit knowledge in teaching practices.
Make an audit of what teachers	Supposing you have to teach writing for job application letters or discursive essays at 12^{th} graders, you may prefer to give them information (i.e. clear task information), language (phrases, words,	-To reveal the existing knowledge of

know, what they don't know and what they need to know.	parts of sentences), patterns and schemes (frames to follow for writing procedures) and ideas (words or something more substantial when they got stuck), involving them in engaging writing tasks, both intellectually and emotionally (amusing and intriguing them, making them feel good). 4. a. Do you feel that you know everything about teaching and learning? b. Can you mention some things you don't know about teaching and learning? c. What do you think you need to know to improve your teaching and learning?	teachers by undertaking an audit of teachers' professional knowledge. -To create knowledge repositories for schools to manage and share knowledge.
Describe the process of knowledge management.	5. a. How do you acquire, share and apply information and knowledge at the time being? b. How do you collaborate and cooperate with peers? c. How do you share resources among colleagues?	To understand how k. is acquired, produced and shared in the present and to be able to implement a km strategy.
Enablers and barriers in knowledge management process.	6. a. How often do you share your opinion, experience with colleagues? b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this? c. Are you willing to share with them your tacit knowledge/ expertise? Why/ why not? d. If you had a really bad experience in the class, do you share it with your colleagues? e. Are you motivated to share your expertise with your colleagues now? f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?	To understand possible enablers and barriers in practice in managing knowledge.
Transferring knowledge; Suggestions for improving collaboration.	7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style? b. Do you think talking with peers help you develop professionally? Why/ why not? c. How often do you get inspired from your colleagues? Give examples. d. Give me some suggestions for improving collaboration among teachers. e. How would you like to improve your collaboration skills/ collective learning?	To understand how knowledge is transferred and how collaboration can be improved.
Mention who forms your	8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal	To outline the value of

external and internal networks.	network. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network. Who do you rely on more in dealing with daily challenges/ encountered issues? c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.) d. What value do you think internal and external networks have and how can they be used to better manage knowledge/ improve teaching and learning?	teachers' internal and external networks.
Describe the online platform's categories.	9. a. Do you have experience with online platforms? Are they used in the present? b. Do you think that online platforms are an easy way to acquire and share knowledge? c. Do you think teachers need them for their professional development? d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)? e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there *(e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.)*. f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (*e.g. 1-for home, 2 -for courses, 3-for activities and so on*). g. How would you see a perfect environment to transmit resources, knowledge and expertise? *(e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible)* h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?	To sketch the online platform.
Mentoring activities and training programmes.	10. a. Would you like to/ are you involved in apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge? b. What other activities would you like to involve in? c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (*e.g. teaching and learning, daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else*)? d. If you take part in trainings, how do they influence your teaching methods after you finish courses? And why?	To outline content of ideal workshops.
What contributes to your professional	11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.	To outline characteristics of professional

development?		development.

Interview guide in Romanian:

1. Va rog sa mentionati numele dvs, obiectul care il predati si cati ani de experienta aveti
2. Va dau niste exemple de cunostinte explicite (cunostinte despre continut, curriculum, despre elevi si caracteristicile lor, despre contextul si valorile aducationale) si tacite (cunostinte generale pedagogice si cunostinte de continut pedagogic).
a. Plecand de la aceste tipuri de cunostinte, puteti mentiona din ce este formata baza dvs. de cunostinte pentru predare?
Sau presupunand ca predate gramatica, adjectivele de ex. Unii profi prefera sa o faca traditional, prezentand regulile de formare si folosire sau dand exemple. Alti profi expun elevii la adjective (input) si se asteapta ca elevii sa produca (output), sau asteapta ca elevii sa s idea seama de reguli ei insusi in activitati de invatare prin descoperire. Toate aceste abordari practice difera deoarece nici o clasa de elevi nu e la fel, si profii tre sa ia in calcul varsta, nevoile, interesele si obiectivele elevilor, experienta lor de invatare anterioara sau resursele disponibile.
b. Puteti sa mi dati niste exemple de modul in care predati gramatica? Va plac mai mult activitatile centrate pe elev, dandu le mai multa responsabilitate si implicare in procesul de invatare sau cum o faceti?
3. a. Luand exemplul anterior ca punct de plecare, predate folosinf cunostintele tacite?
b. Vedeti cunostintele tacite ca o unealta pentru predarea si invatarea eficace?
c. Organizeaza institutia dvs. traininguri care sa va ajute sa imbunatatiti cunostintele tacite?
d. Exista o infrastructura adecvata pentru structurarea cunostintelor tacite intre profesori?
e. Cum ati vedea cel mai bun mod de a impartasi cunostintele tacite?
4. Presupunand ca trebuie sa predati compuneri/eseuri la clasa a 8 a, in care le predati de exemplu apartenenta la specie a unui basm, preferati sa le dati informatii clare, limbaj adecvat/ trasaturi specific basmului popular, structura specifica tipului de compunere si idei pentru a scrie ceva substantial atunci cand elevii se bloacheaza, implicandu i in activitati captivante, atat intellectual si emotional (amuzandu i si intrigandu i, facandu i sa se simta bine)?
a. Simtiti ca stiti totul despre invatare si predare?
b. Puteti mentiona cateva lucruri pe care nu le stiti despre predare si invatare?
c. Ce credeti ca aveti nevoie sa stiti pentru a imbunatati predarea si invatarea?
5. a. Cum dobanditi, impartasiti si aplicati informatiile si cunostintele in prezent?
b. Cum colaborati si cooperate cu colegii?
c. Cum impartasiti resursele intre colegi?
6. a. Cat de des impartasiti opinia, experienta cu colegii?
b. Cat de des luati parte la discutii informale cu colegii despre predare? Aveti timp pentru acest lucru?
c. Sunteti dispusi sa impartasiti cu ei cunostintele tacite? De ce da/ de ce nu?
d. Daca aveti o experienta neplacuta in clasa, o impartasiti cu colegii?
e. Sunteti motivati sa impartasiti expertiza dvs. cu colegii acum?

f. Dar daca fisa de evaluare anuala va fi schimbata si veti obtine puncte special pentru asta? Veti fi mai dispusi sa impartasiti cunostintele?
7. a. Daca auziti ca o metoda lucreaza la un coleg, veti incerca sa o aplicati stilului dvs. personal?
b. Credeti ca vorbitul cu colegii va poate ajuta sa va dezvoltati professional? De ce/ de ce nu?
c. Cat de des sunteti inspirati de colegi? Dati exemple.
d. Va rog sa-mi dati cateva sugestii pentru a imbunatati colaborarea intre profesori.
e. Cum v ar placea sa va imbunatatiti abilitatile de colaborare/ invatare colectiva?
8. a. Puteti mentiona daca si cu cati colegi vorbiti despre predare si invatare? Acesti colegi formeaza reteaua dvs. interna.
b. Ganditi-va si mentionati cati prieteni, profesori de liceu sau universitari, modele v-au influentat pe dvs. si formeaza reteaua externa. Pe cine va bazati mai mult in tratarea provocarilor zilnice/ a problemelor intalnite?
c. Pe langa colegi, din ce alte surse va inspirati cel mai mult? (carti, ziare, bloguri, etc.)
d. Ce valoare credeti ca au retelele interne si externe si cum pot fi ele folosite pentru o mai buna administrare(management) a cunostintelor/ pentru a imbunatati predarea si invatarea?
9. a. Aveti experienta cu platformele online? Sunt ele folosite in present?
b. Credeti ca platformele online sunt un mod mai usor de a dobandi si impartasi cunostintele?
c. Credeti ca profesorii au nevoie de ele in dezvoltarea profesionala?
d. Daca ar fi sa folosim o platforma online in liceul nostru, ce continut ati dori sa gasiti acolo (ex. cursuri, noutati, cataloage online, forum, etc.)?
e. Gandindu va la nevoile dvs ca prof/ diriginte, sau la siteuri ca www.isj.gl.edu.ro , www.edu.ro, ce altceva v ar placea sa fie inclus acolo (ex. categorie pentru comunicarea cu parintii, cu alti profi, nevoile dvs de colaborare, examene, etc.)?
f. Va rog sa gradati categoriile de continut pe care le ati mentionat de la 1- cel mai important la 10 (sau nr. de categorii la care ati ajuns) cel mai putin important? (ex. 1-pentru acasa, 2-pentru cursuri, 3-pentru activitati, 4-pentru forum s.a.m.d).
g. Cum vedeti un mediu perfect de transmitere a cunostintelor, resurselor si expertizei? (ex. sa fie potrivit nevoilor profesorilor, sa aiba informatii relevante, sa fie usor accesibil, etc.)
h. Cum ati folosi o platforma online sa create, distribuiti si sa aplicati cunostintele? Cum ati organiza activitatile educationale aici?
10. a. V-ar placea sa va implicati in activitati de ucenicie/noviciat, de mentoring sau coaching (ex. lectii deschise) ca sa impartasiti cunostintele tacite?
b. In ce alte activitati v-ar placea sa va implicati?
c. Cum vedeti un workshop sau training ideal pentru un management adecvat al cunostintelor si al dezvoltarii profesionale? Sau pe ce ar trebui sa se concentreze (ex. predare si invatare, provocari zilnice cu care trebuie sa se confrunte profesorii, managementul clasei de elevi, realizarile, performantele si sprijinul elevilor sau ce altceva)?
11. Va rog sa mentionati care sunt cele mai importante aspect care contrinuie la dezvoltarea dvs. profesionala. Puteti mentiona si aspectele deja discutate.

Annex 4: Transcription of the interviews with teachers of "Mircea Eliade" high school

Interview person 1:

Interview questions	Interview answers
1. Please mention your name, the subject you teach and the number of years of work experience that you have.	1. My name is Interview Person 1, and I have been teaching both Romanian and English, for 11 years.
I will give some examples of *explicit* (content knowledge, curriculum knowledge, knowledge of students and their characteristics, knowledge of educational context and knowledge of educational values) and *tacit knowledge* (general pedagogical knowledge and pedagogical content knowledge). 2.a. Starting from these, can you mention what forms your knowledge base for teaching? Or supposing you have to teach grammar, taking adjectives for example, how do you do that? Some teachers prefer to do it traditionally, presenting the rules of form and of use and giving examples. Other teachers expose students to adjectives (input) and expect students to produce (output), or expect students to work out the rules themselves in discovery learning activities, or they prefer grammar translation activities. All these practical approaches differ because no class of students is the same, and teachers have to take into account students' age, needs, interests, goals, previous learning experience or available resources. 2.b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?	2. a. The curriculum basis for teaching is continually developing. But I must specify firstly the universitary studies and secondly training courses. They have merged, combined over time with the accumulated experience. 2. b. I prefer the democratic style, but it varies depending on the child and the classroom' s level, if I think of smaller classes. So, if we talk about the level until 13 years old, when I cannot rely on the child's ability to abstract, then I explain him more, I give him more examples to be easier for his mind to make connections. And then the child's responsibility is smaller. As the child grows, I can give him more responsibilities and I can let him make connections, starting from this practical method, that you called it input and output. But again, it varies depending on age. At grammar, there are very useful the activities where you rely on what the child knows already, because he can make connections. The same goes for "the wrong example" methods, which are easier to deal with. Then the child corrects you and in the same time he observes the rule.
3. a. Taking the previous example as point of departure, are you aware of the fact that you teach with your tacit knowledge? b. Do you see tacit knowledge a tool for effective teaching and learning? c. Does your institution organize trainings to assist you improve your tacit knowledge? d. Is there a proper infrastructure to structure tacit knowledge among teachers? e. How would you see the best way to share tacit knowledge?	3. a. We are using tacit knowledge unwillingly. But they are more useful at literature. Thinking of grammar, we use them when the class decides that is the right time. I cannot schedule from home (taking a project for example) how I use tacit knowledge. Instead, depending on student's feedback in the class, I can use them, I can come with another example, I can come with another connection, or even a child can guide me on a particular path to go.

	b. Yes, certainly. Tacit knowledge helps us to have more interesting classes, helps us to get closer to the child. Firstly, it helps you to find the gaps and barriers in the act of learning, as opposed to explicit knowledge that can be used by a robot, right? c. We do not organize in the institution, but the city organizes courses, activities where we take part in and help each other, with the aim to combine all the knowledge that we have, may them be methodological knowledge, content knowledge, and to optimize the educational act, performance. d. No, our educational system does not stipulate the tacit knowledge. More than that, most of them are covered by the occult curriculum, meaning by what we almost unwillingly teach. It is like the situation when a child takes an attitude from me, without him realizing it. e. By exchanging experiences between teachers.
Supposing you have to teach writing for job application letters or discursive essays at 12th graders, you may prefer to give them information (i.e. clear task information), language (phrases, words, parts of sentences), patterns and schemes (frames to follow for writing procedures) and ideas (words or something more substantial when they got stuck), involving them in engaging writing tasks, both intellectually and emotionally (amusing and intriguing them, making them feel good). 4. a. Do you feel that you know everything about teaching and learning? b. Can you mention some things you don't know about teaching and learning? c. What do you think you need to know to improve your teaching and learning?	4. Speaking of teaching tales, this topic cannot be done in one hour. Firstly, it is used an unspecialized language just to capture child's attention and to open his mind to the content, to the tale's morality. As time goes, as our curriculum stipulates, we will insert specialized language, i.e. literary theory. The child will have to appropriate terms, lexical core, and then to use it in an essay (where I prefer to help children with a plan). The child is not forced to entirely follow the plan, just to guide him. a. I don't know everything about teaching and learning. And this is because I know everything from what I have lived, but each class comes with a different background, with other expectations. We change from year to year, and then to know everything is not necessarily impossible, but complacency (i.e. self-sufficiency) destroys the teacher. b. I do not know if the issue is "what we don't know about teaching and learning", it is rather "I want more" or "I want more to make myself understood". The main problem I encounter is with high school classes where the content of literary theories

	is not suitable to the age and level of understanding of a child (it is higher). I mean it is difficult to transpose adult feelings to a child, to make him understand adult feelings, it's hard to open him to such mature feelings. And then teaching literature is a continuous challenge. I think we should have or we have an ongoing need to reform teaching methods. So, teaching literature is like cinematography. And I think that here is the big problem of teaching literature. Grammar does not seem to cause so many problems. Getting closer to the child requires a different technique over and over again. This is because a certain method is only suitable for only one literary work. Another literary work demands another method or at a certain class it is suitable a method, and for another class is not suitable. Having all these in mind, you can get into a "methods crisis". These ways of getting closer to the child are very useful. c. First of all, I think that I need to know and experience them (methods), but first time not in class. I need to experience them with someone else, or with another group to see if they work, then I can use them in class. I mean that I cannot afford to commit mistakes in the class.
5. a. How do you acquire, share and apply information and knowledge at the time being? b. How do you collaborate and cooperate with peers? c. How do you share resources among colleagues?	5. a. We acquire and share knowledge by taking part in training courses, in expert/ specialized meetings, national and international symposiums, and we share very much in the same way, but in class, too. b. With notes, graphic or example. Collaborating with colleagues, especially with those that teach the same subjects as me, is very good. This is because we support each other in the educational act. c. We always help each other with lessons plans, models, teaching materials, or even with ideas.
6. a. How often do you share your opinion, experience with colleagues? b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this? c. Are you willing to share with them your tacit	6. a. There are certain times when we have to help each other daily. But it depends mostly on the curriculum. It may depend on changes, too. Changes in the way exams are taken, changes in the school year's structure or changes in the curriculum as I have said.

knowledge/ expertise? Why/ why not? d. If you had a really bad experience in the class, do you share it with your colleagues? e. Are you motivated to share your expertise with your colleagues now? f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?	We must deal with them on the go, and then we really need to meet daily and discuss, agree on some details. b. When we daily discuss teaching, we usually we stay after we finish classes, or if we have a free hour, we use it to discuss. c. Most colleagues are willing to share expertise and tacit knowledge. Some of goodwill, kindness, some do it probably to help. Those who are more experienced, do it for this reason, but also for appreciation and to help colleagues, for collegiality. I personally do not appreciate people who do not say anything, who don't help. Generally, we help each other. Some people are less sociable but not exaggerated. But it is our job, profession which requires to be good communicators. d. Yes, I share the bad experience with my colleagues. I do that because we often find the solution in others' experience. I mean that not always what it seems to me that is good, is so, and then my colleague can come up with another idea that helps me, that improves my method. Or I may even find a solution to prevent such situations in the future. We do not do this to complain. We do it to find a solution. e. Firstly, the law of minimum effort: if I easily manage to do something, I can help my colleague who, in turn, will help me. Not necessarily of kindness, of generosity, but also to ease our job. And to optimize the results, which is the main purpose (to achieve optimal results). f. I think that I will be more willing to share knowledge if the annual form changes.
7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style? b. Do you think talking with peers help you develop professionally? Why/ why not? c. How often do you get inspired from your colleagues? Give examples. d. Give me some suggestions for improving collaboration among teachers. e. How would you like to improve your collaboration skills/ collective learning?	7. a. At least I will try to adapt. If it doesn't suit me, I will try to adapt it to see if it gives results. b. Yes, talking with peers help me develop professionally. Firstly, it is because you find solutions. Secondly, because if you talk or express your views, you will be guaranteed that when you do something wrong someone will tell you you're wrong. And because more minds together work better than a single one.

	c. I cannot say that I am a great source of inspiration, I cannot figure it out. But I do not hesitate to appreciate a colleague, to thank him for the times when he gave me ideas, inspired me. If I can do the same thing in turn, I am very pleased. d. You see, finding ways to improve collaboration is not an easy task. It is up to each person, up to one's character, personality. I mean I think it's ok to say character. Furthermore, collaboration may be improved by taking part in common, shared activities between classes, or in experience exchanges. Or at some point in time, maybe it would be possible for the class teacher to be changed for a week or two. I mean that another teacher should come and see class, and he can find other solutions, he can come up with other ideas and then he can communicate "his findings" to his colleague. Or maybe taking part in an activity with one teacher who teach and another colleague who corrects, gives suggestions, sees where gaps are and so it would be easier to fill them. Or it would be a good idea if the methodologic meetings among colleagues would be more frequent. But not very frequent because they overcrowd and then they become redundant, we do not know what to talk about. And a coffee is always of help. e. I think that workshops would help us. We are familiar with the rest of courses, but with workshop we are not, and then it would be something new.
8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal network. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network. Who do you rely on more in dealing with daily challenges/ encountered issues? c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.) d. What value do you think internal and external networks have and how can they be used to better	8. a. I talk about teaching and learning with all my colleagues. b. I can say that there are three teachers who impressed and influenced me by their way of being. In dealing with daily challenges I rely on my knowledge and on my experience. c. I get inspired from newspapers rather than from books. I mean that newspapers are more realistic and closer to the child, and then they help me. I mean I have to find this bridge. In vain I talk to children from books if they do not live in books, they live in reality.

manage knowledge/ improve teaching and learning?	d. These networks must be correlated, I mean that they cannot work one without the other. I consider that we always have to take into account a correspondence between the internal and external network. Especially when we teach, when we come up with examples and when we evaluate. Because, beyond the aspects the child learns in the class, going out of it, out of school, he faces real life, which "hits" him. And if he finds out that what I offered him, or what I forced him to do or whatever I did, what he received from me does not find a correspondent in reality, I have basically lost the child forever, I will not succeed to positively influence him.
9. a. Do you have experience with online platforms? Are they used in the present? b. Do you think that online platforms are an easy way to acquire and share knowledge? c. Do you think teachers need them for their professional development? d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)? e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there (e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.). f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (e.g. 1-for home, 2 -for courses, 3-for activities and so on). g. How would you see a perfect environment to transmit resources, knowledge and expertise? (e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible) h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?	9. a. Yes, but as I have said, I just inspire myself from them. I do not know if one can take something for granted and use the next day in the class, but they are fine. b. Not necessarily knowledge as content. Knowledge is gained harder, I mean that I must put them into practice, I must evaluate them, there are more of "I must". But the idea or content, yes. It is very easy to share and absorb, but from here I must process them, to come to "knowledge". c. Definitely. We live in the century of speed, with so many things to do in a short time, and we always have to be ahead everything. Under these circumstances, such a platform that works as a database too, helps me a lot. And it helps me to avoid those crisis situations when I do not find the solution by myself. Then, at one click away, there are 10 ideas and maybe from their corroboration I achieve something great. d. Courses, news, catalogues, teaching materials catalogues would be great because we need them, I am not decided about forums. Teaching materials catalogues and news would be the best. Because we are somehow experienced, we forget what is new and then news would help us, and news can be emphasized somehow to be more visible. e. I do not know if I need something new, as I need a clearer organizational chart, an

	organogram of the site. Edu website is poorly designed, that of the regional inspectorate is ok, it is more visible. Maybe information should be more quickly updated, or in real time, that's the word, to be updated in real time. f. 1-teaching materials catalogues, 2-courses, 3 news, 4 activities, 5 maybe something for parents, 6 exams, 9 about- just for students, for teachers is not necessary. And I don't find contact relevant, you can go to school. g. All three of them: to be suitable to teachers' need, to have relevant information, to be easily accessible. Besides these, I need it to be up-to-date and helpful. h. First of all, we need a lab. And its size should be suitable for all my children. Yes, it would be of help, but not very often, because at some point it would be like e-learning or distance learning. But it would be of great help because each child could do different activities and I could give them specific requirements and I could check them in real time. I mean, it is different in class when they bring me their notebooks, or they stand up and talk, and it is different because I waste time in these situations. It would be another story just to check them online, to monitor the activity of each of them. Especially if there are grammar activities, online platforms would be great. Or at least this is what I think.
10. a. Would you like to/ are you involved in apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge? b. What other activities would you like to involve in? c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (e.g. teaching and learning, daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else)?	10. a. I think I would like, I mean I don't see a problem in doing this, I won't say no to this. b. Experience exchanges, teachers exchanges between classes. c. It should focus on things that are really possible, and not on the ones we want, we think that sound great, or we have watched in a movie or read about. We should focus on the things we can actually do, or on things that we did and on things that need minimal resources, or at least financial minimal resources.
11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.	11. Firstly, the relationship with colleagues. Then the one with students. Afterwards training courses, openness to new, and

	involvement in daily activities, because they make or are the key to the success of any teacher.

Interview person 1 in Romanian:

2.a. Baza curriculara pentru predare se formeaza continuu. In schimb trebuie precizate: in primul rand, studiile universitare si in al doilea rand cursurile de formare. Acestea s-au imbinat de a lungul timpului cu experienta acumulata.
b. Prefer stilul democratic dar difera de nivelul copilului si al clasei, vorbim de clase mai mici. Deci daca vorbim de nivelul pana in 13 ani, cand nu ma pot baza pe capacitatea copilului de abstractizare, atunci ii explic eu mai mult, ii dau exemplu mai mult tocmai ca mintea lui sa poata sa faca conexiunile mai usor. Si atunci responsabilitatea copilului este mai mica. Pe masura ce creste copilul, imi permit sa-i dau mai multe responsabilitati si sa-l las pe el sa faca conexiunile, plecand de la aceasta metoda mai practica, pe care ai denumit-o cu input si output. Dar, inca o data, difera si de nivelul de varsta. La gramatica sunt foarte utile activitatile in care te bazezi pe cee ace copilul stie deja, pentru ca el poate sa faca conexiuni. Sau, tot la fel, la gramatica mai sunt usor de abordat metodele prin exemplu gresit. Si atunci copilul te corecteaza si sesizeaza si regula in acelasi timp.

3. a. Cunostintele tacite le folosim fara sa vrem. Dar ele sunt mult mai utile la literature, iar la gramatica le folosim la momentul oportun creat de clasa. Nu pot sa programez de acasa pentru un proiect sa spun, cum folosesc cunostintele tacite. In schimb, la clasa, in functie de feedbackul elevului pot sa ma folosesc de ele, pot sa vin si cu alt exemplu, pot sa vin cu alta conexiune, sau chiar copilul poate sa ma indrume pe un anumit drum.
b. Da, fara dar si poate. Aceste cunostinte ne ajuta sa avem orele de curs mult mai interesante, ne ajuta sa ne apropriem de copil. In primul rand ne ajuta sa-i descoperim golurile si barierele in actul invatarii, spre deosebire de cunostintele explicite care pot fi utilizate si de un robot, nu?
c. Nu organizam in institutie, dar la nivelul orasului se organizeaza cursuri, activitati la care participam si ne ajutam tocmai ca sa putem sa imbinam toate cunostintele pe care le avem, fie ca sunt metodologice, fie ca sunt de continut, tocmai in vederea optimizarii actului educational.
d. Nu, sistemul nostrum educational de invatamant nu prevede aceste cunostinte tacite, ba mai mult decat atat o mare parte din ele sunt acoperite de curriculum occult, adica de cee ace predam copilului aproape fara sa vrem. Este exact ca atunci cand copilul preia o atitudine de la mine fara sa-si dea seama.
e. Intre profesori prin schimb de experienta.

4. Referitor la predarea basmului, aceasta tema nu se poate face intr-o singura ora. Daca la inceput se foloseste un limbaj nespecializat, doar pentru a capta copilul si a-l putea deschide catre continut, catre morala basmului, pe parcurs, asa cum prevede practice si programa noastra, vom insera termini de specialitate, practic teorie literara. Copilul va fi nevoit sa-si insuseasca termenii, nucleul lexical, si mai apoi sa-l foloseasca intr-o compunere, la care prefer sa ii ajut pe copii cu un plan. Copilul nu e obligat sa respecte planul in totalitate, ci sa se ghideze dupa el.

a. Nu, pentru ca stiu totul din cee ace am trait eu, dar fiecare clasa vine cu un alt background, cu alte expectante. Noi ne modificam de la an la an, si atunci a sti totul e nu neaparat imposibil, dar autosuficienta practice distruge profesorul.
b. Nu stiu daca se pune problema de a nu sti, cat se pune problema de "imi doresc mai mult", sau imi doresc mai mult sa ma fac inteleasa. Principala problema o intampin la clasele mai mari unde continutul teoriilor literare depaseste nivelul de varsta al copilului, nivelul de intelegere. Adica e greu sa pui in mintea copilului sentimentele adultului, e greu sa-l deschizi catre astfel de trairi destul de mature sa spunem. Si atunci literature este o provocare continua la predare. Cred ca ne-ar trebui sau avem o nevoie continua de a reforma metoda de predare. Deci ora de predare a literaturii este asemenea cinematografiei. Si cred ca aici este marea problema a literaturii, a predarii ei. Gramatica nu pare sa puna asa de multe probleme. Apropierea de copil necesita mereu, mereu, mereu, alta tehnica, pentru ca daca la o opera se pliaza o metoda, la alta opera ai nevoie de alta, la o clasa merge ceva, la alta clasa nu merge, si la un moment dat s-ar putea sa intri in criza de metode. Aceste maniere de a ne apropia de copil sunt foarte utile.
c.Cred ca in primul rand e nevoie sa le cunosc si sa le experimentez (metodele), dar nu prima data la clasa cu copilul. Am nevoie sa le experimentez cu altcineva, sau cu alt grup sa vad daca functioneaza, si apoi la clasa. Adica, la clasa nu-mi permit sad au gres.

5. a. Le dobandim prin cursuri de formare, prin intruniri de specialitate, simpozioane, si le impartasim cam in aceeasi metoda dar si la clasa.
b. Cu nota, cu graphic sau cu exemplu. Colaborarea cu colegii, mai ales care predau aceeasi materie este foarte buna, tocmai pentru ca ne sustinem unii pe altii in actul educational.
c. Intotdeauna de ajutam reciproc cu modele de lectii, cu materiale didactice, sau chiar cu idei.

6. a. Sunt anumite perioade cand este nevoie chiar zilnic sa ne ajutam. Dar probabil si in functie de programa, de cee ace prevede programa. Sau de schimbari, daca se schimba maniera de examen, daca se schimba structura anului scolar sau programa, automat trebuie sa ne repliem din mers si atunci chiar avem nevoie zilnic sa ne intalnim sis a ne punem de accord in privinta unor detalii.
b. Cand facem acest lucru zilnic, de obicem stam dupa ore, sau daca avem o fereastra…
c. Majoritatea colegilor sunt dispusi sa faca acest lucru. Unii din bunavointa, unii poate chiar pentru a ne ajuta, cei care au mai multa experienta, tocmai din acest motiv, si pentru apreciere dar si pentru a ne ajuta, din colegialitate. Eu personal nu apreciez persoanele care nu spun absolut nimic, nu ajuta. In general, ne ajutam. Unele personae sunt mai putin sociabile dar nu exagerat, adica meseria noastra presupune sa fim buni comunicatori.
d. Da, pentru ca de multe ori gasim solutia si in experienta celorlalti. Adica nu intotdeauna cee ace mi se pare mie bine este bine, si atunci colegul venind cu o alta idee ma poate ajuta, imi poate imbunatati mie metoda, sau chiar pot gasi o solutie pentru a preveni astfel de situatii pe viitor. Nu facem acest lucru ca sa ne plangem, nu. Doar ca sa gasim o solutie
e. In primul rand legea minimului efort: daca eu fac un lucru usor, pot sa-l ajut sip e colegul meu care la randul lui ma va ajuta pe mine. Nu neaparat din bunatate, din marinimie, dar si pentru a ne usura munca. Si pentru a optimiza rezultatele in primul rand, asta este principalul scop, rezultatele sa fie optime.

f. Eu cred ca da.

7. a. Cel putin voi incerca sa o adaptez. Daca nu mi se potriveste deloc voi incerca sa o adaptez sa vedem daca da rezultate.
b. Da, pentru ca, in primul rand atunci cand vorbesti gasesti solutii. In al doilea rand pentru ca vorbind sau expunandu-ti punctul de vedere vei avea garantia ca atunci cand gresesti cineva iti va spune, dar macar nu gresesti. Si pentru ca mai multe capete la un loc sigur functioneaza mai bine decat unul singur.
c.Nu as putea sa spun ca eu as fi o mare sursa de inspiratie, adica nu pot sa-mi dau seama, (ar trebui sa-mi intreb colegii), dar nu evit in a-mi aprecia un coleg, sa-i multumesc pentru momentele in care m-a ajutat cu o idee si practice m-a inspirit. Daca la randul meu pot sa fac acelasi lucru sunt foarte multumita.
d. Vedeti, acest lucru mai tine si de caracterul fiecaruia. Adica cred ca e ok spus de character. Dar: activitatile in comun, adica intre clase, sau schimbul de experienta. Sau nu stiu, daca s-ar putea la un moment dat sa se schimbe profesorul de la clasa, pentru o saptamana, doua, sa vina altul, celalalt coleg sa vada clasa, poate gaseste alte solutii, ii vin alte idei si atunci i le poate comunica colegului. Sau daca ar preda cineva si alt coleg ar corecta iar s-ar vedea unde sunt decalaje si astfel ar fi mai usor de acoperit. Sau daca intrunirile cu scop methodologic ar fi mai dese intre colegi cred ca ar fi in regula. Dar nici foarte dese pentru ca supraaglomereaza si atunci devin redundante, nu mai stim despre ce sa discutam. Si o cafeluta totdeauna ajuta.
e. Cred ca un workshop ne ajuta. Cu restul suntem familiari, dar cu workshopul mai putin, si atunci ar fi ceva nou.

8. a. Cu toti colegii.
b. Sa spunem ca ar fi cam 3 profesori care m-au influentat prin felul lor de a fi. Ma bazez odata pe cunostinte si inca o data pe experienta.
c. Mai degraba din ziare decat din carti. Adica ziarele sunt mai aproape de realitate, si mai aproape de copil, si atunci ma ajuta. Adica trebuie sa gasesc puntea asta. Degeaba ii vorbesc copilului din carti daca el nu traieste in carti, el traieste in realitate. E un declic aici.
d. Aceste retele trebuie correlate, adica nu se poate una fara cealalta, si nici invers. Eu consider ca mereu, si atunci cand predam, si atunci cand gasim exemplu, inclusive cand evaluam trebuie sa avem in vedere un correspondent intre reteaua interna si reteaua externa. Pentru ca dincolo de ce invata copilul la clasa, el practic iesind din clasa, din scoala, se loveste de viata reala. Si daca el observa ca cee ace eu i-am dat, sau cee ace l-am obligat pana la urma, sau mai stiu eu ce am facut, ceea ce a ajuns la el de la mine nu se pliaza in realitate eu practic am pierdut copilul pentru totdeauna, nu o sa mai reusesc sa-l influentez in mod pozitiv pe urma.

9. a. Da, dar revenind, doar la modul inspirational. Nu stiu daca se poate lua ceva ca atare si folosi a doua zi, dar sunt in regula.
b. Nu neaparat cunostinte, cat continuturi. Cunostintele se dobandesc mai greu, adica trebuie sa le pun in practica, trebuie sa le evaluez, sunt mai multi de trebuie. Dar continutul sau idea da. E foarte usor de impartasit si de absorbit, dar, pe urma eu trebuie sa le prelucrez, sa ajung la o cunostinta.

c. Clar. Deci traind in secolul vitezei si avand atat de multe lucruri de facut, si intr-un timp atat de scurt, si mereu sa fii cu un picior in fata, inainte, atunci o astfel de platforma care functioneaza si ca o baza de date pe mine ma ajuta foarte mult. Si ma ajuta sa evit acele situatii criza cand nu gasesc de una singura Solutia. Si atunci la un click distanta, gasesc 10 idei si poate, din coroborarea lor imi iese ceva optim.
d. Cursuri, noutati, cataloage, cataloage cu materiale didactice ar fi nemaipomenite pentru ca ducem lipsa de asa ceva, forum nu sunt hotarata Cataloage cu materiale didactice si noutati ar fi cele mai bune. Din prisma experientei uitam ce ar fi nou si atunci ne-ar ajuta, chiar cu un click-click ceva nou, adica sa fie evidentiat.
e. Nu stiu daca am nevoie de ceva nou, cat de o organigrama mai clara a siteului. Siteul Edu este foarte prost conceput, cel al isj-ului e mai in regula, adica se vede mai usor. Poate ar trebui actualizate mai repede, sau in timp real, asta e cuvantul, sa fie actualizat in timp real.
f. 1-cataloage cu materiale didactice 2-cursuri 3-noutati 4-activitati 5- Poate ceva cu parintii. 6-examene 7-cataloage cu note 8- forum 9-despre—doar pentru copii isi gaseste locul, pentru profesori nu; fara contact, poti sa te duci la scoala.
g. Toate 3. Sa mai fie si de actualitate si util.
h. In primul rand avem nevoie de un laborator in care sa-mi incapa toti copiii. Da, ne-ar ajuta, dar nu foarte des, adica la un moment dat e ca si cum as invata la distanta. Dar ar ajuta pentru ca fiecare copil ar putea sa faca alta activitate si as putea sa le dau la fiecare cerinte specific sis a-I verific in timp real. Adica una ar fi in clasa cand imi aduce fiecare caietul sau il ridic in picioare si pierd timpul si una ar fi doar sa verific, sa-mi arate calculatorul ce face X, Y, Z si sa vad. Mai ales daca sunt activitati de gramatica, platformele ar fi super in regula, asa vade u lucrurile.

10. a. Cred ca da, adica nu vad o problema in asta, clar nu spun nu.
b. Schimburi de experienta, schimburi de profesori la clase.
c. Ar trebui sa se concentreze pe lucrurile care sunt cu adevarat posibile, si nu pe cele pe care doar ni le dorim, care suna foarte bine, pe care le-am vazut intr-un film sau despre care am citit. Sa ne concentram pe lucrurile pe care chiar putem sa le facem sau pe lucrurile pe care chiar le-am facut si care au nevoie de resurse, cel putin financiare minime.

11. Relatia cu elevii si colegii, cu colegii in primul rand, cursurile de formare, deschiderea spre nou, dar si implicarea in activitatile de zi cu zi, pentru ca ele dau pana la urma succesul oricarui professor.

Interview person 2:

Interview questions	Interview answers
1. Please mention your name, the subject you teach and the number of years of work experience that you have.	1. My name is Interview Person 2, and I have been an English teacher for 8 years.
I will give some examples of *explicit* (content	2. a. I am a graduate of the West University

knowledge, curriculum knowledge, knowledge of students and their characteristics, knowledge of educational context and knowledge of educational values) and *tacit knowledge* (general pedagogical knowledge and pedagogical content knowledge). 2.a. Starting from these, can you mention what forms your knowledge base for teaching? Or supposing you have to teach grammar, taking adjectives for example, how do you do that? Some teachers prefer to do it traditionally, presenting the rules of form and of use and giving examples. Other teachers expose students to adjectives (input) and expect students to produce (output), or expect students to work out the rules themselves in discovery learning activities, or they prefer grammar translation activities. All these practical approaches differ because no class of students is the same, and teachers have to take into account students' age, needs, interests, goals, previous learning experience or available resources. 2.b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?	of Timisoara with a degree in English language and literature. I attended teacher training modules where we, as future English teachers, were taught what to do. There we can assume that tacit knowledge is my base for teaching. 2. b. At the beginning of my career, I used to select deductive approach when dealing with grammar. The students were taught the rules of the grammar directly and explicitly without using meaningful contexts. Meanwhile I have had the opportunity to take some courses in order to improve myself as an English teacher and to adapt to the new requirements. Lately I have used inductive approaches in order to expose my students to examples of language within a meaningful context and with them to come up with the target grammatical rules. However, the teacher has the role of a facilitator for the students' learning who monitors students' performance. I do my best to engage my students into a wide range of challenging activities. They learn to take responsibility for their own learning by becoming aware of themselves, their language learning experiences as well as controlling and applying their own learning strategies.
3. a. Taking the previous example as point of departure, are you aware of the fact that you teach with your tacit knowledge? b. Do you see tacit knowledge a tool for effective teaching and learning? c. Does your institution organize trainings to assist you improve your tacit knowledge? d. Is there a proper infrastructure to structure tacit knowledge among teachers? e. How would you see the best way to share tacit knowledge?	3. a. Yes, I teach with my tacit knowledge. b. I consider tacit knowledge as the base for developing a career in this field. c. No, it doesn't. d. Unfortunately, there isn't any proper infrastructure. e. I believe that seminars and conferences are where you can pick up some of the latest developments and useful ideas for teaching.
Supposing you have to teach writing for job application letters or discursive essays at 12^{th} graders, you may prefer to give them information (i.e. clear task information), language (phrases, words, parts of sentences), patterns and schemes (frames to follow for writing procedures) and	4. a. I consider myself inexperienced but with high hopes of becoming a great teacher someday. b. I am aware of the fact that development does not end after attending some courses. I would like to expand my knowledge related

ideas (words or something more substantial when they got stuck), involving them in engaging writing tasks, both intellectually and emotionally (amusing and intriguing them, making them feel good). 4. a. Do you feel that you know everything about teaching and learning? b. Can you mention some things you don't know about teaching and learning? c. What do you think you need to know to improve your teaching and learning?	to class management and communicative language teaching. c. I think that you need to have a good command of English language and the desire to continue learning.
5. a. How do you acquire, share and apply information and knowledge at the time being? b. How do you collaborate and cooperate with peers? c. How do you share resources among colleagues?	5. a. There is much to be learnt from the various methodology books, journals and magazines produced for teachers of English. Books and articles written by teachers and theorists will often open our eyes to new possibilities to acquire information and knowledge. b. There are some groups and communities in social networks that help you to stay in contact with colleagues worldwide and we can use them to share and apply the new ideas. c. I share resources by using these groups and communities in social networks mentioned above.
6. a. How often do you share your opinion, experience with colleagues? b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this? c. Are you willing to share with them your tacit knowledge/ expertise? Why/ why not? d. If you had a really bad experience in the class, do you share it with your colleagues? e. Are you motivated to share your expertise with your colleagues now? f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?	6. a. I sometimes share my opinions and experience with colleagues. b. Sometimes we have some informal discussions regarding teaching in the staffroom. You know time is always our enemy. c. Yes, I am willing to share my knowledge with my colleagues. I consider that one of the most supportive environments for teachers, where real teacher development can take place, is in small teacher groups. d. Yes, I will definitely share it with my colleagues because our main goal is to cooperate and find possible solutions when we encounter some obstacles. e. Yes, I am. f. We should be a team no matter what.
7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style? b. Do you think talking with peers help you	7. a. I will try to apply it and adapt it to my own style. b. Having a good relationship with colleagues, sharing knowledge can improve

develop professionally? Why/ why not? c. How often do you get inspired from your colleagues? Give examples. d. Give me some suggestions for improving collaboration among teachers. e. How would you like to improve your collaboration skills/ collective learning?	our professional careers. This is a good way to make yourself aware of the varied techniques that teachers use and I will definitely pick up some new ideas. c. I get inspired from my colleagues when I have the chance to observe their lessons but unfortunately this does not happen so often. d.+e. Lesson observation can be a very important part of development especially if it is followed by a discussion where we could have the chance to analyze our strengths and weaknesses regarding teaching and learning.
8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal network. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network. Who do you rely on more in dealing with daily challenges/ encountered issues? c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.) d. What value do you think internal and external networks have and how can they be used to better manage knowledge/ improve teaching and learning?	8. a. There are 3 colleagues. b. I remember there were a few university teachers that inspired me to become a teacher too. When dealing with daily challenges, I rely on my internal network. c. I often get inspired from books. d. Internal and external networks are both important as they enable us to add extra ideas and knowledge.
9. a. Do you have experience with online platforms? Are they used in the present? b. Do you think that online platforms are an easy way to acquire and share knowledge? c. Do you think teachers need them for their professional development? d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)? e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there (e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.). f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (e.g. 1-for home, 2 -for	9. a. Yes, I have experience with online platforms as they were used at some teacher training courses I attended. b. Yes, I think that online platforms are an easy way to acquire and share knowledge. They can be easily accessed by anyone having an internet connection. c. They are important tools in teaching and learning as we can collaborate with others, write, edit, change and add content any time. d. I would like to find information and details about courses and conferences. A forum will be also an inviting environment to share new ideas and recommend suggestions on teaching. I would also like about, news, contact. e. A category for communicating with other teachers, a category for communicating with parents and a category for courses and conferences.

courses, 3-for activities and so on). g. How would you see a perfect environment to transmit resources, knowledge and expertise? (e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible) h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?	f. 1 – for communicating with parents 2 – for communicating with peers 3 – for courses 4-conferences, 5 for forum, 6 for about, 7 for news, 8 for contact g. A platform or webpage which can be accessed by any teacher having an internet connection. The teachers can have the opportunity to create their webpages too, and discuss ideas on how to teach specific topics, exchange materials, resources and suggestions on how to promote a stimulating learning environment in the classroom. h. I would use it to establish networks and relationships with people sharing the same values and professional needs. Some lessons can be recorded and posted on the web-pages. We can learn from the teaching styles and techniques of others.
10. a. Would you like to/ are you involved in apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge? b. What other activities would you like to involve in? c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (e.g. teaching and learning, daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else)? d. If you take part in trainings, how do they influence your teaching methods after you finish courses? And why?	10. a. I would like to get involved in this type of activities. b. Seminars, workshops and conferences are opportunities to up-date and refresh your knowledge. c. I would like to join a training program focusing on classroom management. An ideal workshop would be one which develops my learning abilities and practical approaches. d. Gaining more knowledge influence my understanding and my new understanding influence my teaching methods.
11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.	11. I consider that it is very important to continue professional development by attending training courses, seminars, workshops regularly and enrolling on methodology courses which will enable us to reconstruct our knowledge.

Interview person 3:

Interview questions	Interview answers
1. Please mention your name, the subject you teach and the number of years of work experience that you have.	1. My name is Interview Person 3, and I have been teaching English for 10 years.

I will give some examples of *explicit* (content knowledge, curriculum knowledge, knowledge of students and their characteristics, knowledge of educational context and knowledge of educational values) and *tacit knowledge* (general pedagogical knowledge and pedagogical content knowledge). 2.a. Starting from these, can you mention what forms your knowledge base for teaching? Or supposing you have to teach grammar, taking adjectives for example, how do you do that? Some teachers prefer to do it traditionally, presenting the rules of form and of use and giving examples. Other teachers expose students to adjectives (input) and expect students to produce (output), or expect students to work out the rules themselves in discovery learning activities, or they prefer grammar translation activities. All these practical approaches differ because no class of students is the same, and teachers have to take into account students' age, needs, interests, goals, previous learning experience or available resources. 2.b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?	2. a. I can say that tacit knowledge is my base for teaching, together with explicit knowledge. In my opinion, in order to become a successful teacher, you should combine those two forms of knowledge. 2. b. During the first years of my career, I used to teach grammar traditionally- Presentation-Practice- Production. Students were presented the rules, given some examples, then we practiced and in the end, they were the ones expected to produce. After a while I started attending courses in order to improve myself as an English teacher and it changed my perspective. I now show students grammar evidence and ask them to work out for themselves how the language is constructed, organize them in pairs and groups, I expose them to videos with native speakers and samples of native language, I use games to make practice more engaging. In other words, I changed my lessons from teacher-centered to student-centered. I always try to engage my students into a variety of challenging activities, so that they never get bored, I encourage them to take responsibility for their own learning by becoming aware of their language learning experiences.
3. a. Taking the previous example as point of departure, are you aware of the fact that you teach with your tacit knowledge? b. Do you see tacit knowledge a tool for effective teaching and learning? c. Does your institution organize trainings to assist you improve your tacit knowledge? d. Is there a proper infrastructure to structure tacit knowledge among teachers? e. How would you see the best way to share tacit knowledge?	3. a. Yes, I am aware of this fact. b. Yes, I believe that tacit knowledge is an important tool for teaching and learning. c. No, it doesn't. d. No, there isn't any proper infrastructure. e. The best way to share tacit knowledge would be while participating in workshops, conferences, seminars or even symposiums.
Supposing you have to teach writing for job application letters or discursive essays at 12^{th} graders, you may prefer to give them information (i.e. clear task information), language (phrases, words, parts of sentences), patterns and schemes (frames to follow for writing procedures) and ideas (words or something more substantial when they got stuck), involving them in engaging writing tasks, both intellectually and emotionally	4. a. Definitely not. b. I would like to learn more about managing learning, especially mistakes and feedback. c. I think that nowadays we should know more about virtual learning.

(amusing and intriguing them, making them feel good). 4. a. Do you feel that you know everything about teaching and learning? b. Can you mention some things you don't know about teaching and learning? c. What do you think you need to know to improve your teaching and learning?	
5. a. How do you acquire, share and apply information and knowledge at the time being? b. How do you collaborate and cooperate with peers? c. How do you share resources among colleagues?	5. a. I read methodology books and magazines for teachers of English. I also write articles. b. There are some groups on social networks that we all use to collaborate and cooperate. c. I share resources by using these groups I have already mentioned.
6. a. How often do you share your opinion, experience with colleagues? b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this? c. Are you willing to share with them your tacit knowledge/ expertise? Why/ why not? d. If you had a really bad experience in the class, do you share it with your colleagues? e. Are you motivated to share your expertise with your colleagues now? f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?	6. a. We have monthly meetings where we share opinions and experience. b. Not very often. Unfortunately, we do not have enough time. c. Yes, I am willing to share my tacit knowledge with my colleagues. I consider that we should help each other and work as a team. d. Yes, I share it with my colleagues and they help me find a possible solution to that. e. Yes, I am. f. I would do it no matter what.
7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style? b. Do you think talking with peers help you develop professionally? Why/ why not? c. How often do you get inspired from your colleagues? Give examples. d. Give me some suggestions for improving collaboration among teachers. e. How would you like to improve your collaboration skills/ collective learning?	7. a. I will probably adapt it to my own style. b. As I said before, we should all work as a team. By talking with peers, you will find out about new techniques/methods, exchange ideas, materials. All these help you to develop professionally. c. I get inspired from my colleagues when I actually see them teaching and that happens once a month. d. Organize meetings regularly. Share information freely. e. By observing more experienced teachers while practicing.
8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal network. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network.	8. a. There are 4 colleagues. b. There are two university teachers that influenced me and also my high school teacher of English. In dealing with daily challenges, I rely on my internal network. c. I often get inspired from methodology

Who do you rely on more in dealing with daily challenges/ encountered issues? c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.) d. What value do you think internal and external networks have and how can they be used to better manage knowledge/ improve teaching and learning?	books. d. Internal and external networks are both important and they should be used in order to improve ourselves as teachers.
9. a. Do you have experience with online platforms? Are they used in the present? b. Do you think that online platforms are an easy way to acquire and share knowledge? c. Do you think teachers need them for their professional development? d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)? e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there (e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.). f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (e.g. 1-for home, 2 -for courses, 3-for activities and so on). g. How would you see a perfect environment to transmit resources, knowledge and expertise? (e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible) h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?	9. a. Yes, I have experience with online platforms while attending some teacher training courses. b. Yes, I think that online platforms are an easy way to acquire and share knowledge as they only require having an internet connection. c. Yes, I think teachers need and should use them for their professional development. d. I would like to find information about: About us; teachers (can include events, conferences, courses& programmes, online resources, school network, cooperation with peers); news; forum; students (contests, resources (textbooks, tests), projects); parents; contact us e. A category for communicating with other teachers and a category for courses and conferences. f. 1 – about us; 2-teachers; 3-news; 4-forum; 5-students; 6- parents; 7-contact us g. A perfect environment to transmit resources, knowledge and expertise would be an online platform easily accessible by teachers all over the world. h. I would use an online platform to interact with others sharing the same professional needs. I would organize everything on categories: worksheets, tests, videos, samples of good practice, etc.
10. a. Would you like to/ are you involved in apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge? b. What other activities would you like to involve in? c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (e.g. teaching and learning,	10. a. I am not involved in such things, but I would like to. b. I would like to involve in Cambridge exams. c. I would like to join workshops and training programmes that focus on practical approaches. d. They influence my teaching methods because I try to implement new techniques,

daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else)? d. If you take part in trainings, how do they influence your teaching methods after you finish courses? And why?	practices learnt there.
11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.	11. In my opinion, it is very important to continue professional development by constantly attending training courses and exchange programmes for teachers of English.

Interview person 4:

Interview questions	Interview answers
1. Please mention your name, the subject you teach and the number of years of work experience that you have.	1. My name is Interview Person 4, I have been teaching French for 10 years.
I will give some examples of *explicit* (content knowledge, curriculum knowledge, knowledge of students and their characteristics, knowledge of educational context and knowledge of educational values) and *tacit knowledge* (general pedagogical knowledge and pedagogical content knowledge). 2.a. Starting from these, can you mention what forms your knowledge base for teaching? Or supposing you have to teach grammar, taking adjectives for example, how do you do that? Some teachers prefer to do it traditionally, presenting the rules of form and of use and giving examples. Other teachers expose students to adjectives (input) and expect students to produce (output), or expect students to work out the rules themselves in discovery learning activities, or they prefer grammar translation activities. All these practical approaches differ because no class of students is the same, and teachers have to take into account students' age, needs, interests, goals, previous learning experience or available resources. 2.b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?	2. a. To have a solid construction, obviously, we need a solid teaching knowledge base. As a teacher, I need an accumulation of knowledge that is first capable of satisfying my needs as tutor / instructor / trainer and secondly those of the group/ class / category with whom I collaborate / interact / or form. I like to think that combining explicit with implicit knowledge brings better results in my daily practice. In my opinion to categorize involves having some limits. And in learning a foreign language being limited just to explicit knowledge causes harm to some extent for some people, who are the students in my case. They may have a different approach / vision of an epic or lyric literary work or even of a grammatical structure. 2. b. A teacher feels grammar, he feels it every time he talks, he feels it in the way he talks. A teacher can feel that, when teaching the notion of "subject", the subject can be the teacher himself. The teacher is responsible for the way the student wants to be teacher's subject in turn. As I have previously said, imposing restrictions or limits means catagorizing and this is not what the student needs. The student needs combined things, diversified examples, role play, he needs to

	attend some "experiments" which are not chemical, theoretical, but grammatical, stylistic. A simple lesson of grammar can be debated in a complex grammar book. Angles are multiple, subjects are infinite. Taking into account individual and age peculiarities and the characteristics of the educational situation, the teacher designs and organizes educational sequences, which must contribute to a great extent to training and informing students. The teacher is responsible for choosing the most appropriate and effective educational strategies and tools.
3. a. Taking the previous example as point of departure, are you aware of the fact that you teach with your tacit knowledge? b. Do you see tacit knowledge a tool for effective teaching and learning? c. Does your institution organize trainings to assist you improve your tacit knowledge? d. Is there a proper infrastructure to structure tacit knowledge among teachers? e. How would you see the best way to share tacit knowledge?	3. a. As a teacher, I use a lot tacit knowledge. It is a type of personal knowledge, difficult to formalize, which makes it so difficult to communicate or share with others. Moreover, tacit knowledge is deeply rooted in my actions and my experience as a teacher of French Language and Literature, as in the ideals that I embrace. b. The dimension of tacit knowledge shapes the way in which we perceive the world around us. In French literature classes perceptions, ideals, values, emotions and mental patterns are ingrained in us and make tacit knowledge' productivity to be applicable in most of my classes. c. Unfortunately, I cannot brag about too many trainings organized by the institution where I work, but not out of negligence or carelessness, logistics can be one of the causes. d. Fortunately, there is the infrastructure, but unfortunately not anyone can benefit of it. e. Obviously, communication has always been the base of knowledge, of diversifying and enriching the quality of the education. Meeting with specialized people and teachers, where this subject can be debated, would be very helpful.
Supposing you have to teach writing for job application letters or discursive essays at 12^{th} graders, you may prefer to give them information (i.e. clear task information), language (phrases, words, parts of sentences), patterns and schemes	4. Literature lessons are exciting when I use video and audio tools. Students are more engaged in acquiring both theoretical and practical knowledge. a. I will never know everything about

(frames to follow for writing procedures) and ideas (words or something more substantial when they got stuck), involving them in engaging writing tasks, both intellectually and emotionally (amusing and intriguing them, making them feel good). 4. a. Do you feel that you know everything about teaching and learning? b. Can you mention some things you don't know about teaching and learning? c. What do you think you need to know to improve your teaching and learning?	teaching and learning. There will always be room for innovations. b. I cannot say exactly what I do not know. But I know for sure that we learn our entire life, we will never stop learning. c. I need to know my partners to improve these two activities, namely teaching and learning.
5. a. How do you acquire, share and apply information and knowledge at the time being? b. How do you collaborate and cooperate with peers? c. How do you share resources among colleagues?	5. a. Individual study and discussions with other colleagues or partners help me to gain knowledge, skills and values that define me and the things I do. b. Collaboration is a productive one, and this can be seen in the results of my students. c. We share resources directly at a "round table" when time allows us or indirectly, by mail, when distance is not of help.
6. a. How often do you share your opinion, experience with colleagues? b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this? c. Are you willing to share with them your tacit knowledge/ expertise? Why/ why not? d. If you had a really bad experience in the class, do you share it with your colleagues? e. Are you motivated to share your expertise with your colleagues now? f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?	6. a. Very frequent, because there are all the time questions, confusions, unclear issues. b. We monthly meet to discuss this topic during methodic committees. c. We always share experiences, knowledge, information we possess, it's like a bargain, everyone wins something. d. Yes, I always do it. e. Definitely, open discussions motivate and even mobilize, encourage.me. f. Why not, all of us can gain something from this.
7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style? b. Do you think talking with peers help you develop professionally? Why/ why not? c. How often do you get inspired from your colleagues? Give examples. d. Give me some suggestions for improving collaboration among teachers. e. How would you like to improve your collaboration skills/ collective learning?	7. a. I will definitely try it, because I like challenges. b. Ideas "born" ideas, talking to colleagues is of great benefit, it reinforces our knowledge, it improves the quality of teaching and learning. c. I have colleagues who will inspire me all the time, and who have inspired me in the past. I am the head of class activities' committee and I always learn something from here. d. Communication is the key, we all have the same objective: improving educational act.

	e. I would like to attend some experience exchanges with other countries, and to know the European education more than I already do.
8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal network. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network. Who do you rely on more in dealing with daily challenges/ encountered issues? c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.) d. What value do you think internal and external networks have and how can they be used to better manage knowledge/ improve teaching and learning?	8. a. I talk to everyone I know, no matter what they teach. b. I don't have an exact number of people who influenced my development, but there are some who had a significant contribution. I definitely rely on myself. c. Internet is the most important, closely followed by specialized magazine, newspapers and books. d. These types of networks are of essential value for my professional development and for improving the quality of teaching and learning.
9. a. Do you have experience with online platforms? Are they used in the present? b. Do you think that online platforms are an easy way to acquire and share knowledge? c. Do you think teachers need them for their professional development? d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)? e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there (e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.). f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (e.g. 1-for home, 2 -for courses, 3-for activities and so on). g. How would you see a perfect environment to transmit resources, knowledge and expertise? (e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible) h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?	9. a. I am not so experienced, I have other colleagues who often use online platforms. b. Yes, online platforms contribute to an easier and accessible way of acquiring and sharing knowledge. c. Yes, online platforms are of great help for each teacher's professional development. d. Courses, news, forum, catalogues, all of them would help. e. These websites are quite elaborate, but I would like to find a category for communicating with parents, with other teachers, to find information about exams and so on. f. 1 – news 2- professional development 3 for teachers 4 -for students 5- for parents 6 - forum 7- about 8 -contact 9 resources g. All three of them. h. Communication among teachers would be easier in the online environment, we could record and post online models of lessons, distributing knowledge and experience. Seeing other ideas and having other models, we can apply the knowledge to own style. Educational activities would be easier to organize, some are already structured and we can take them for granted or we can adapt them to the class.
10. a. Would you like to/ are you involved in	10. a. Yes, it would be both interesting and

apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge? b. What other activities would you like to involve in? c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (e.g. teaching and learning, daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else)? d. If you take part in trainings, how do they influence your teaching methods after you finish courses? And why?	instructive for me. b. Volunteering activities for disadvantaged students. c. An ideal workshop or training would be one in which every problem in teaching and learning would have at least three solutions. And I say this because not all solutions are accessible to everyone. For this reason, I'd like to be multiple solutions. I would like the training to focus on teaching and learning, but also on various daily challenges faced by teachers. d. Taking part in trainings is beneficial for me because here we find out methods that we have not tried, and what we borrow from courses is helpful in classroom activities.
11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.	11. Design teaching activities is a continuous, permanent action, which precedes the educational approach, endeavor, no matter the size, complexity or duration. It involves relationships between content, objectives and strategies for training and self-training. This activity ends with elaborating useful working tools for the teacher: thematic plans and lesson plans to the elementary training sequence.

Annex 5: Meaning condensation of the interviews

2. a. What forms your knowledge base for teaching?

Two teachers mentioned tacit and explicit knowledge, the other two added universitary studies, teacher training courses and experience.

2. b. Can you give me some examples of how do you teach grammar? Do you like more student centeredness activities, giving them more responsibility and involvement in the learning process and how do you do it?

Two said that they used to teach traditionally in the beginning of the career, then they attended courses and they improved as teachers, changing their perspectives.

"During the first years of my career, I used to teach grammar traditionally- Presentation-Practice-Production. Students were presented the rules, given some examples, then we practiced and in the end, they were the ones expected to produce. After a while I started attending courses in order to improve myself as an English teacher and it changed my perspective. I now show students grammar evidence and ask them to work out for themselves how the language is constructed, organize them in pairs and groups, I expose them to videos with native speakers and samples of native language, I use games to make practice more engaging. In other words, I changed my lessons from teacher-centered to student-centered. I always try to engage my students into a variety of challenging activities, so that they never get bored, I encourage them to take responsibility for their own learning by becoming aware of their language learning experiences." (Interview person 3)

The other two teachers said that they always took into account the characteristics of students, such as age, needs, background, previous learning experience and so on.

"I prefer the democratic style, but it varies depending on the child and the classroom' s level, if I think of smaller classes. So, if we talk about the level until 13 years old, when I cannot rely on the child's ability to abstract, then I explain him more, I give him more examples to be easier for his mind to make connections. And then the child's responsibility is smaller. As the child grows, I can give him more responsibilities and I can let him make connections, starting from this practical method, that you called it input and output. But again, it varies depending on age. At grammar, there are very useful the activities where you rely on what the child knows already, because he can make connections. The same goes for "the wrong example" methods, which are easier to deal with. Then the child corrects you and in the same time he observes the rule." (Interview person 1)

3.a. Are you aware of the fact that you teach with your tacit knowledge?

All teachers answered yes. Some added: "Tacit knowledge is deeply rooted in my actions and my experience as a teacher of French Language and Literature, as in the ideals that I embrace." (Interview person 4). Or: "We are using tacit knowledge unwillingly. But they are more useful at

literature. Thinking of grammar, we use them when the class decides that is the right time. I cannot schedule from home (taking a project for example) how I use tacit knowledge. Instead, depending on student's feedback in the class, I can use them, I can come with another example, I can come with another connection, or even a child can guide me on a particular path to go." (Interview person 1).

3.b. Do you see tacit knowledge a tool for effective teaching and learning?

All four said yes. Interview person 1 added: "Tacit knowledge helps us to have more interesting classes, helps us to get closer to the child. Firstly, it helps you to find the gaps and barriers in the act of learning, as opposed to explicit knowledge that can be used by a robot, right?"

Interview person 4 said: "The dimension of tacit knowledge shapes the way in which we perceive the world around us. In French literature classes perceptions, ideals, values, emotions and mental patterns are ingrained in us and make tacit knowledge' productivity to be applicable in most of my classes."

3.c. Does your institution organize trainings to assist you improve your tacit knowledge?

All teachers said that the high school does not organize trainings, but the city does.

Interview person 1 mentioned: "We do not organize in the institution, but the city organizes courses, activities where we take part in and help each other, with the aim to combine all the knowledge that we have, may them be methodological knowledge, content knowledge, and to optimize the educational act, performance."

3.d. Is there a proper infrastructure to structure tacit knowledge among teachers?

All teachers said that there isn't any proper infrastructure and tacit knowledge is not stipulated in the Romanian educational system. Interview person 1: "No, our educational system does not stipulate the tacit knowledge. More than that, most of them are covered by the occult curriculum, meaning by what we almost unwillingly teach. It is like the situation when a child takes an attitude from me, without him realizing it."

3. e. How would you see the best way to share tacit knowledge?

All teachers mentioned exchanging experiences between teachers, taking part in seminars, conferences, workshops, symposiums, communicating more and meeting specialized people and teachers.

Interview person 2: "I believe that seminars and conferences are where you can pick up some of the latest developments and useful ideas for teaching."

4. How do you teach writing?

Interview person 1: "Speaking of teaching tales, this topic cannot be done in one hour. Firstly, it is used an unspecialized language just to capture child's attention and to open his mind to the content,

to the tale's morality. As time goes, as our curriculum stipulates, we will insert specialized language, i.e. literary theory. The child will have to appropriate terms, lexical core, and then to use it in an essay (where I prefer to help children with a plan). The child is not forced to entirely follow the plan, just to guide him."

4.a. Do you feel that you know everything about teaching and learning?

All four teachers mentioned they obviously don't, there is always room for innovation. Interview person 1: "I don't know everything about teaching and learning. And this is because I know everything from what I have lived, but each class comes with a different background, with other expectations. We change from year to year, and then to know everything is not necessarily impossible, but complacency (i.e. self-sufficiency) destroys the teacher."

4.b. Can you mention some things you don't know about teaching and learning?

All teachers said that they cannot mention what they don't know, but they know that they want more, to develop professionally, to learn their entire life and they would like to find out more about managing learning (i.e. mistakes and feedback), classroom management and communicative language teaching.

Interview person 1: "I do not know if the issue is "what we don't know about teaching and learning", it is rather "I want more" or "I want more to make myself understood". The main problem I encounter is with high school classes where the content of literary theories is not suitable to the age and level of understanding of a child (it is higher). I mean it is difficult to transpose adult feelings to a child, to make him understand adult feelings, it's hard to open him to such mature feelings. And then teaching literature is a continuous challenge. I think we should have or we have an ongoing need to reform teaching methods. So, teaching literature is like cinematography. And I think that here is the big problem of teaching literature. Grammar does not seem to cause so many problems. Getting closer to the child requires a different technique over and over again. This is because a certain method is only suitable for only one literary work. Another literary work demands another method or at a certain class it is suitable a method, and for another class is not suitable. Having all these in mind, you can get into a "methods crisis". These ways of getting closer to the child are very useful."

4. c. What do you think you need to know to improve your teaching and learning?

Two teachers mentioned that they need to have a good command of the subject they teach, the desire to continue learning, and they need to experience methods in other environments before doing it in class, to avoid making mistakes. Another one said that she needs to know better students' background and the other mentioned the desire to know about virtual learning.

Interview person 1: "First of all, I think that I need to know and experience them (methods), but first time not in class. I need to experience them with someone else, or with another group to see if they work, then I can use them in class. I mean that I cannot afford to commit mistakes in the class."

5. a. How do you acquire, share and apply information and knowledge at the time being?

Two teachers mentioned they acquire, share and apply knowledge by learning from methodology books, magazines, articles, and the other two mentioned the need to discuss with colleagues, individual study, taking part in teacher courses, meetings and symposiums.

Interview person 1: "We acquire and share knowledge by taking part in training courses, in expert/ specialized meetings, national and international symposiums, and we share very much in the same way, but in class, too."

Interview person 2: "There is much to be learnt from the various methodology books, journals and magazines produced for teachers of English. Books and articles written by teachers and theorists will often open our eyes to new possibilities to acquire information and knowledge."

Interview person 4: "Individual study and discussions with other colleagues or partners help me to gain knowledge, skills and values that define me and the things I do."

5. b. How do you collaborate and cooperate with peers?

Two teachers mentioned social networks, and the other two face-to-face discussions, emails, examples, graphics, notes.

Interview person 1: "With notes, graphic or example. Collaborating with colleagues, especially with those that teach the same subjects as me, is very good. This is because we support each other in the educational act."

5. c. How do you share resources among colleagues?

Two teachers mentioned social networks, the other two mentioned meetings and "round table" discussions.

Interview person 4: "We share resources directly at a "round table" when time allows us or indirectly, by mail, when distance is not of help."

Interview person 1: "We always help each other with lessons plans, models, teaching materials, or even with ideas."

6. a. How often do you share your opinion, experience with colleagues?

Two teachers do it frequently, sometimes every day, the other two do it monthly.

Interview person 1: "There are certain times when we have to help each other daily. But it depends mostly on the curriculum. It may depend on changes, too. Changes in the way exams are taken, changes in the school year's structure or changes in the curriculum as I have said. We must deal with them on the go, and then we really need to meet daily and discuss, agree on some details."

Interview person 3: "We have monthly meetings where we share opinions and experience."

Interview person 4: “Very frequent, because there are all the time questions, confusions, unclear issues.”

6. b. How often do you take part in informal discussions with colleagues regarding teaching? Do you have time for this?

All teachers said they do it when time allows them, daily, weekly or monthly.

Interview person 1: “When we daily discuss teaching, we usually we stay after we finish classes, or if we have a free hour, we use it to discuss.”

Interview person 4: “We monthly meet to discuss this topic during methodic committees.”

6. c. Are you willing to share with them your tacit knowledge/ expertise? Why/ why not?

All teachers said they are willing to do so.

Interview person 1: “Most colleagues are willing to share expertise and tacit knowledge. Some of goodwill, kindness, some do it probably to help. Those who are more experienced, do it for this reason, but also for appreciation and to help colleagues, for collegiality. I personally do not appreciate people who do not say anything, who don’t help. Generally, we help each other. Some people are less sociable but not exaggerated. But it is our job, profession which requires to be good communicators.”

Interview person 2: “Yes, I am willing to share my knowledge with my colleagues. I consider that one of the most supportive environments for teachers, where real teacher development can take place, is in small teacher groups.”

Interview person 3: “Yes, I am willing to share my tacit knowledge with my colleagues. I consider that we should help each other and work as a team.”

Interview person 4: “We always share experiences, knowledge, information we possess, it's like a bargain, everyone wins something.”

6. d. If you had a really bad experience in the class, do you share it with your colleagues?

All teachers said that they share it because it is better to find solutions together and to cooperate.

Interview person 1: “Yes, I share the bad experience with my colleagues. I do that because we often find the solution in others’ experience. I mean that not always what it seems to me that is good, is so, and then my colleague can come up with another idea that helps me, that improves my method. Or I may even find a solution to prevent such situations in the future. We do not do this to complain. We do it to find a solution.”

6. e. Are you motivated to share your expertise with your colleagues now?

All teachers said that they are motivated to do it now.

Interview person 1: “Firstly, the law of minimum effort: if I easily manage to do something, I can help my colleague who, in turn, will help me. Not necessarily of kindness, of generosity, but also to ease our job. And to optimize the results, which is the main purpose (to achieve optimal results).”

Interview person 4: “Definitely, open discussions motivate and even mobilize, encourage me.”

6. f. What if the annual evaluation form will be changed and you will get special points for this? Will you be more willing to share knowledge?

All teachers said that they will do it.

Interview person 1: “I think that I will be more willing to share knowledge if the annual form changes.”

Interview person 4: “Why not, all of us can gain something from this.”

7. a. If you hear about a method that works for one colleague, will you try to apply it to your own style?

All teachers said that they will try to apply it.

Interview person 1: “At least I will try to adapt. If it doesn’t suit me, I will try to adapt it to see if it gives results.”

Interview person 4: “I will definitely try it, because I like challenges.”

7. b. Do you think talking with peers help you develop professionally? Why/ why not?

All teachers said that it does help, because they pick up new ideas, find out about new methods, exchange materials.

Interview person 1: “Yes, talking with peers help me develop professionally. Firstly, it is because you find solutions. Secondly, because if you talk or express your views, you will be guaranteed that when you do something wrong someone will tell you you're wrong. And because more minds together work better than a single one.”

Interview person 2: “Having a good relationship with colleagues, sharing knowledge can improve our professional careers. This is a good way to make yourself aware of the varied techniques that teachers use and I will definitely pick up some new ideas.”

Interview person 4: “Ideas “born” ideas, talking to colleagues is of great benefit, it reinforces our knowledge, it improves the quality of teaching and learning.”

7. c. How often do you get inspired from your colleagues? Give examples.

All teachers said that they get inspired by their colleagues. Two of them are inspired all the time, and the other two once a month when they have the chance to observe lessons.

Interview person 1: “I cannot say that I am a great source of inspiration, I cannot figure it out. But I do not hesitate to appreciate a colleague, to thank him for the times when he gave me ideas, inspired me. If I can do the same thing in turn, I am very pleased.”

7. d. Give me some suggestions for improving collaboration among teachers.

One teacher said it is up to each person, to their character. She mentioned shared activities between classes, experience exchanges, teacher exchanges between classes and frequent methodological meetings. The other three teachers mentioned communicating more, others mentioned a better organization of meetings and sharing information.

Interview person 1: “You see, finding ways to improve collaboration is not an easy task. It is up to each person, up to one’s character, personality. I mean I think it's ok to say character. Furthermore, collaboration may be improved by taking part in common, shared activities between classes, or in experience exchanges. Or at some point in time, maybe it would be possible for the class teacher to be changed for a week or two. I mean that another teacher should come and see class, and he can find other solutions, he can come up with other ideas and then he can communicate “his findings” to his colleague. Or maybe taking part in an activity with one teacher who teach and another colleague who corrects, gives suggestions, sees where gaps are and so it would be easier to fill them. Or it would be a good idea if the methodologic meetings among colleagues would be more frequent. But not very frequent because they overcrowd and then they become redundant, we do not know what to talk about. And a coffee is always of help.”

Interview person 4: “Communication is the key, we all have the same objective: improving educational act.”

7. e. How would you like to improve your collaboration skills/ collective learning?

Two teachers mentioned the need to observe more experienced teachers in the class and the other two mentioned workshops and experience exchanges.

Interview person 1: “I think that workshops would help us. We are familiar with the rest of courses, but with workshop we are not, and then it would be something new.”

Interview person 3: “By observing more experienced teachers while practicing.”

Interview person 4: “I would like to attend some experience exchanges with other countries, and to know the European education more than I already do.”

8. a. Can you mention if and how many colleagues do you talk to about teaching and learning? This constitutes your internal network

All teachers answered they do it with all colleagues.

Interview person 4: “I talk to everyone I know, no matter what they teach.”

8. b. Think of and mention how many friends, high school or university teachers, models have influenced you and form your external network. Who do you rely on more in dealing with daily challenges/ encountered issues?

Two teachers answered that they rely on themselves, on their experience and knowledge. The other two rely on their internal network.

Interview person 2: "I remember there were a few university teachers that inspired me to become a teacher too. When dealing with daily challenges, I rely on my internal network."

Interview person 4: "I don't have an exact number of people who influenced my development, but there are some who had a significant contribution. I definitely rely on myself."

8. c. Apart from your colleagues, what other sources do you get inspired from more often? (books, newspapers, etc.)

Three teachers mentioned methodology books, the other added internet, newspapers and specialized magazines.

Interview person 1: "I get inspired from newspapers rather than from books. I mean that newspapers are more realistic and closer to the child, and then they help me. I mean I have to find this bridge. In vain I talk to children from books if they do not live in books, they live in reality."

8. d. What value do you think internal and external networks have and how can they be used to better manage knowledge/ improve teaching and learning?

Two teachers told that they can be used to improve themselves as teachers, the other two said that the networks must be correlated and they enable teachers to add extra knowledge and ideas.

Interview person 1: "These networks must be correlated, I mean that they cannot work one without the other. I consider that we always have to take into account a correspondence between the internal and external network. Especially when we teach, when we come up with examples and when we evaluate. Because, beyond the aspects the child learns in the class, going out of it, out of school, he faces real life, which "hits" him. And if he finds out that what I offered him, or what I forced him to do or whatever I did, what he received from me does not find a correspondent in reality, I have basically lost the child forever, I will not succeed to positively influence him."

9. a. Do you have experience with online platforms? Are they used in the present?

Three teachers told me that they have experience, one has not.

Interview person 1: "Yes, but as I have said, I just inspire myself from them. I do not know if one can take something for granted and use the next day in the class, but they are fine."

9. b. Do you think that online platforms are an easy way to acquire and share knowledge?

All teachers agreed that they are.

Interview person 1: “Not necessarily knowledge as content. Knowledge is gained harder, I mean that I must put them into practice, I must evaluate them, there are more of “I must”. But the idea or content, yes. It is very easy to share and absorb, but from here I must process them, to come to “knowledge”.”

9. c. Do you think teachers need them for their professional development?

All teachers agreed that they need them for their professional development.

Interview person 1: “Definitely. We live in the century of speed, with so many things to do in a short time, and we always have to be ahead everything. Under these circumstances, such a platform that works as a database too, helps me a lot. And it helps me to avoid those crisis situations when I do not find the solution by myself. Then, at one click away, there are 10 ideas and maybe from their corroboration I achieve something great.”

Interview person 2: “They are important tools in teaching and learning as we can collaborate with others, write, edit, change and add content any time.”

9. d. If we are about to use an online platform in our high school, what content would you like to find there (i.e. courses, news, online catalogues, forum, etc.)?

All teachers mentioned courses, news, conferences, contact, about, forum, teachers, students, parents

Interview person 1: “Courses, news, catalogues, teaching materials catalogues would be great because we need them, I am not decided about forums. Teaching materials catalogues and news would be the best. Because we are somehow experienced, we forget what is new and then news would help us, and news can be emphasized somehow to be more visible.”

Interview person 2: “I would like to find information and details about courses and conferences. A forum will be also an inviting environment to share new ideas and recommend suggestions on teaching. I would also like about, news, contact.”

Interview person 3: “I would like to find information about: About us; teachers (can include events, conferences, courses and programmes, online resources, school network, cooperation with peers); news; forum; students (contests, resources (textbooks, tests), projects); parents; contact us.”

9. e. Thinking of your needs as a teacher/ counselor, or at websites as www.isj.gl.edu.ro , www.edu.ro what else would you like to be included there (e.g. category for communicating with parents, with other teachers, your collaboration needs, exams etc.).

All teachers mentioned they need to communicate with peers, parents and they added they need information updated in real time and clear organograms of websites.

Interview person 1: “I do not know if I need something new, as I need a clearer organizational chart, an organogram of the site. Edu website is poorly designed, that of the regional inspectorate is ok, it

is more visible. Maybe information should be more quickly updated, or in real time, that's the word, to be updated in real time."

9. f. Can you rank the categories of content you already mentioned from 1 being the most important to 10 (or your number of categories) being the least important? (e.g. 1-for home, 2 - for courses, 3-for activities and so on).

Interview person 1: "1-teaching materials catalogues, 2-courses, 3 news, 4 activities, 5 maybe something for parents, 6 exams, 9 about- just for students, for teachers is not necessary. And I don't find contact relevant, you can go to school."

Interview person 2: "1 – for communicating with parents 2 – for communicating with peers 3 – for courses 4- conferences, 5 for forum, 6 for about, 7 for news, 8 for contact."

Interview person 3: "1 – about us; 2-teachers; 3-news; 4-forum; 5-students; 6- parents; 7-contact us."

Interview person 4: "1 – news 2- professional development 3 for teachers 4 -for students 5- for parents 6 -forum 7- about 8 -contact 9 resources."

9. g. How would you see a perfect environment to transmit resources, knowledge and expertise? (e.g. to be suitable to teachers' needs, to have relevant information, to be easily accessible)

Two teachers mentioned that the perfect environment should be up-to-date, helpful, relevant, accessible and suitable to teachers' needs. The other two mentioned that it has to be accessed by teachers in the entire world, and the last teacher said that it should be the place where to discuss ideas and ways to promote stimulating learning environments.

Interview person 1: "All three of them: to be suitable to teachers' need, to have relevant information, to be easily accessible. Besides these, I need it to be up-to-date and helpful."

Interview person 2: "A platform which can be accessed by any teacher having an internet connection. The teachers can have the opportunity to discuss ideas on how to teach specific topics, exchange materials, resources and suggestions on how to promote a stimulating learning environment in the classroom."

9. h. How would you use an online platform to create, share and apply knowledge? How would you organize educational activities there?

Two teachers mentioned that they would use it for a better communication, to post and record lessons. The other two said they would interact with others, create categories (like tests, exams and so on) and to check students in real time.

Interview person 1: "First of all, we need a lab. And its size should be suitable for all my children. Yes, it would be of help, but not very often, because at some point it would be like e-learning or

distance learning. But it would be of great help because each child could do different activities and I could give them specific requirements and I could check them in real time. I mean, it is different in class when they bring me their notebooks, or they stand up and talk, and it is different because I waste time in these situations. It would be another story just to check them online, to monitor the activity of each of them. Especially if there are grammar activities, online platforms would be great. Or at least this is what I think."

Interview person 3: "I would use an online platform to interact with others sharing the same professional needs. I would organize everything on categories: worksheets, tests, videos, samples of good practice, etc."

Interview person 4: "Communication among teachers would be easier in the online environment, we could record and post online models of lessons, distributing knowledge and experience. Seeing other ideas and having other models, we can apply the knowledge to own style. Educational activities would be easier to organize, some are already structured and we can take them for granted or we can adapt them to the class."

10. a. Would you like to/ are you involved in apprenticeship, mentoring or coaching activities (such as open lessons) to share tacit knowledge?

All teachers said they would like to do it.

Interview person 1: "I think I would like, I mean I don't see a problem in doing this, I won't say no to this."

Interview person 4: "Yes, it would be both interesting and instructive for me."

10. b. What other activities would you like to involve in?

Some teachers mentioned Cambridge exams, volunteering activities for disadvantaged students. Others mentioned seminars, workshops, conferences, experience exchanges, or teachers exchanges between classes.

10. c. How would you see an ideal workshop or training program for an adequate management of knowledge and professional development? Or on what should it focus (e.g. teaching and learning, daily challenges teachers have to cope with, classroom management, students' achievement and support, or what else)?

Two teachers mentioned it should focus on teaching and learning, on daily challenges. One said it should focus on practical approaches and the other on things that are really possible.

Interview person 1: "It should focus on things that are really possible, and not on the ones we want, we think that sound great, or we have watched in a movie or read about. We should focus on the things we can actually do, or on things that we did and on things that need minimal resources, or at least financial minimal resources."

10. d. If you take part in trainings, how do they influence your teaching methods after you finish courses? And why?

Interview person 2: "Gaining more knowledge influence my understanding and my new understanding influence my teaching methods."

Interview person 3: "They influence my teaching methods because I try to implement new techniques, practices learnt there."

Interview person 4: "Taking part in trainings is beneficial for me because here we find out methods that we have not tried, and what we borrow from courses is helpful in classroom activities."

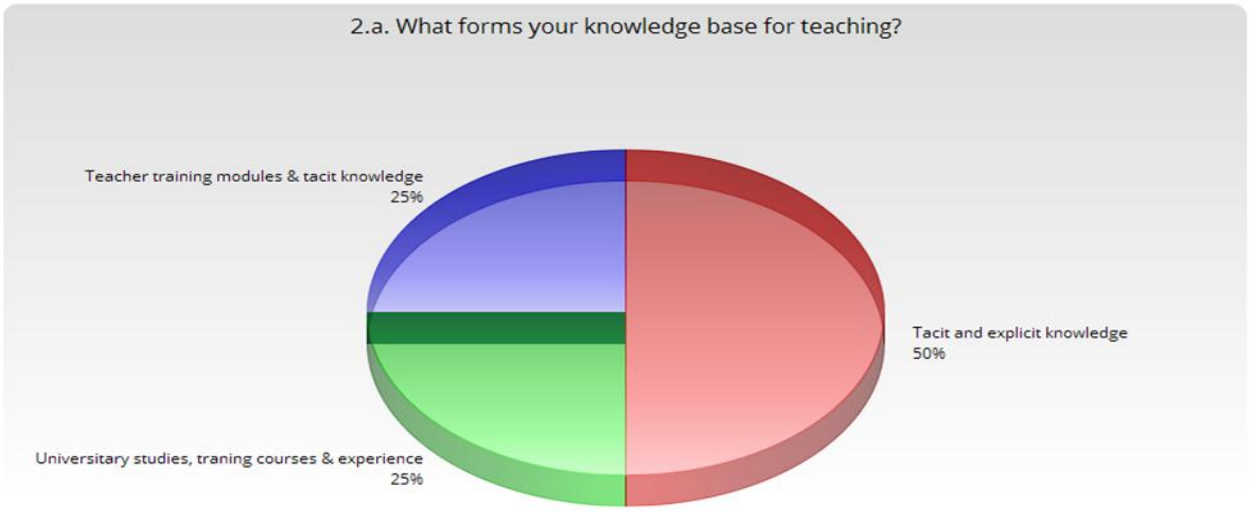
11. Please mention the most important aspects that contribute to your professional development. You can state the things already discussed.

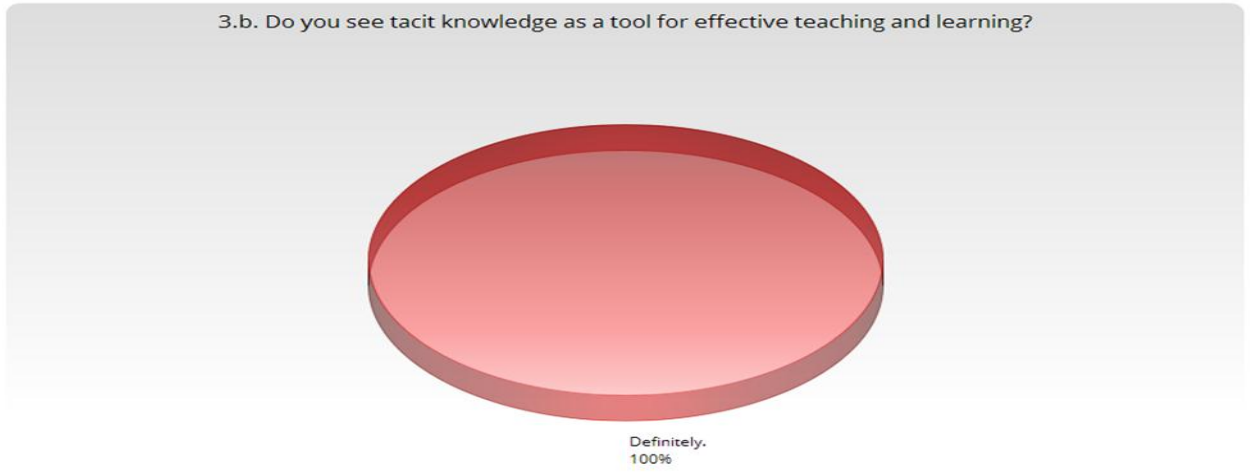
Three teachers mentioned attending training courses, seminars and workshops. The other one added internal networks and openness to new.

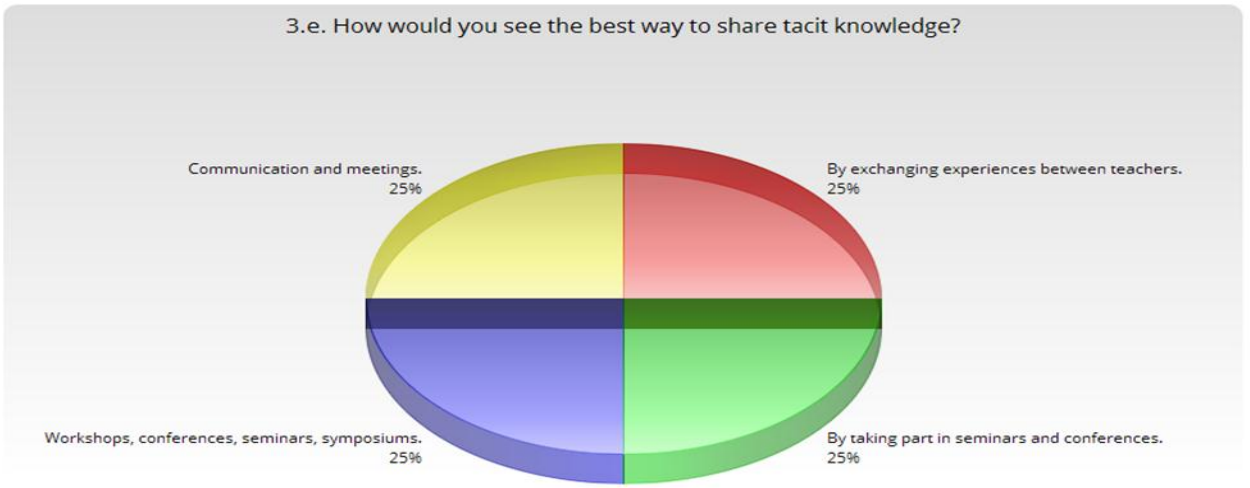
Interview person 1: "Firstly, the relationship with colleagues. Then the one with students. Afterwards training courses, openness to new, and involvement in daily activities, because they make or are the key to the success of any teacher."

Interview person 2: "I consider that it is very important to continue professional development by attending training courses, seminars, workshops regularly and enrolling on methodology courses which will enable us to reconstruct our knowledge."

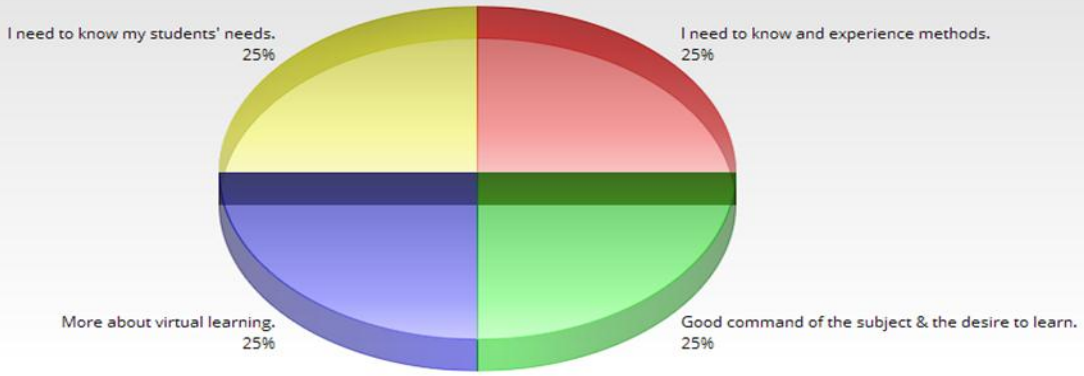
Annex 6: Meaning condensation graphs



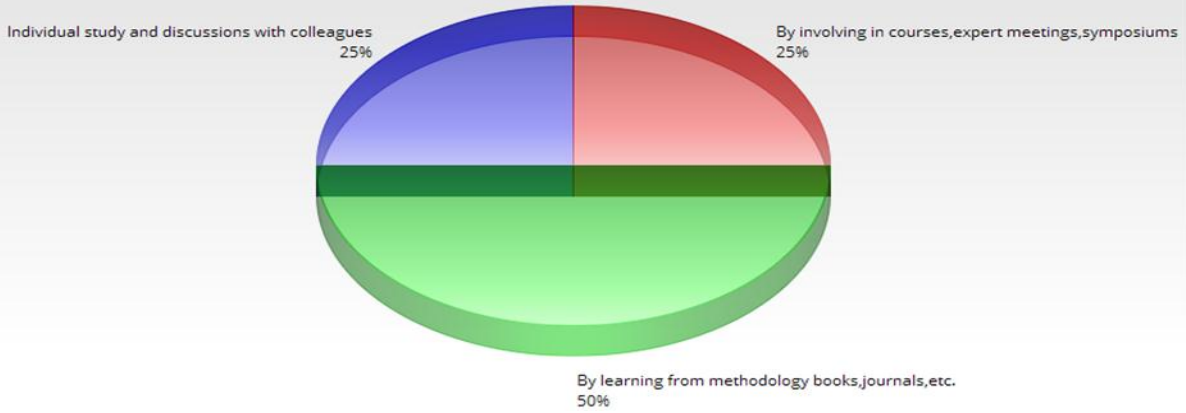




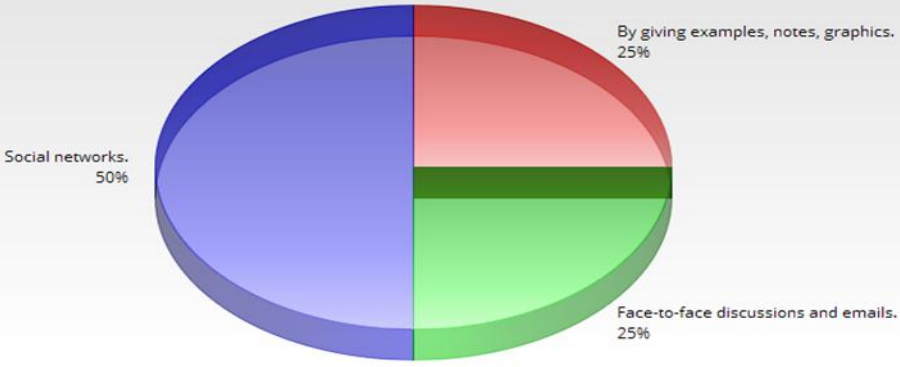
4.c. What do you think you need to know to improve your teaching and learning?



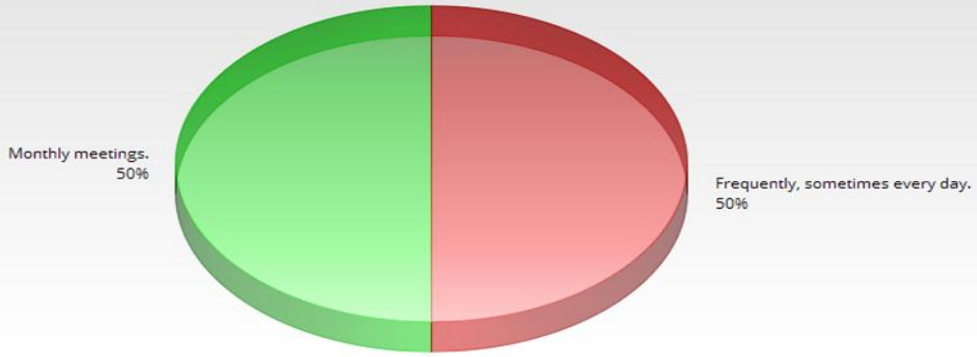
5. a. How do you acquire, share and apply information and knowledge at the time being?



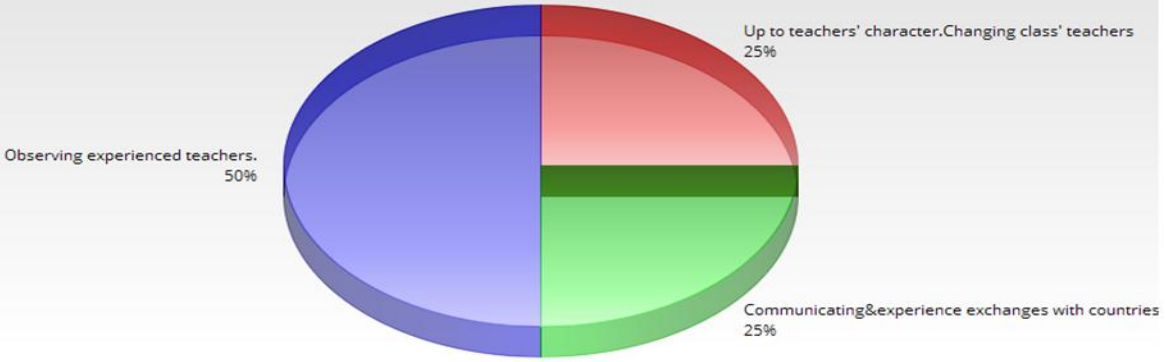
5.b. How do you collaborate and cooperate with peers?



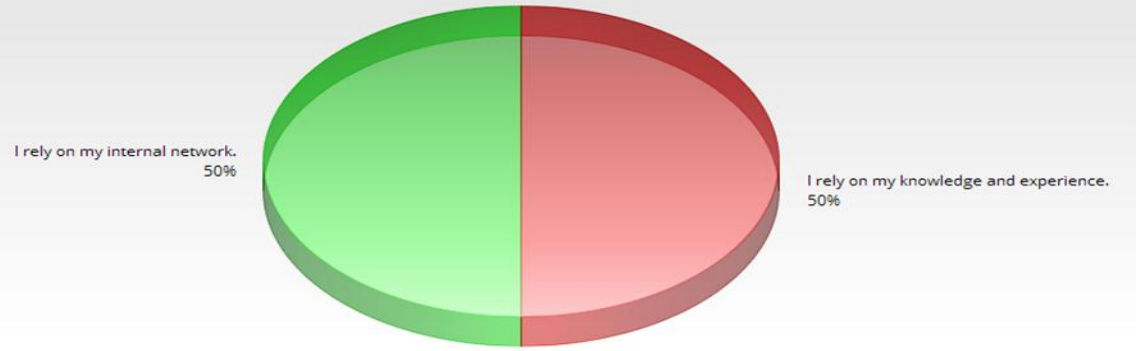
6. a. How often do you share your opinion, experience with colleagues?



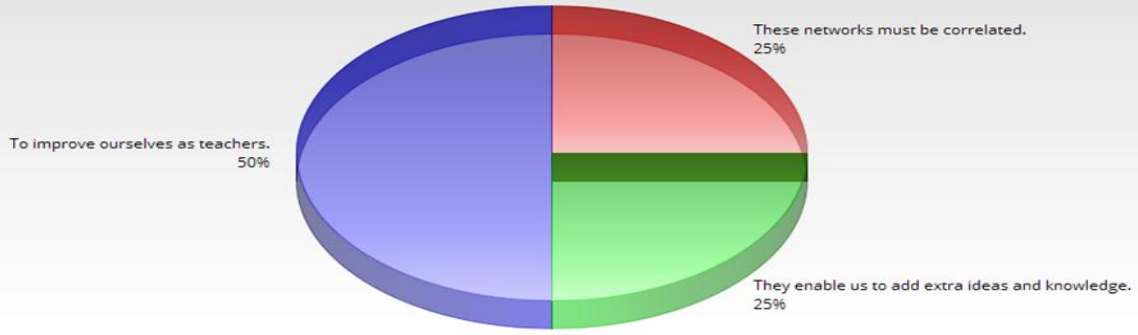
7.d. Give me some suggestions for improving collaboration among teachers.



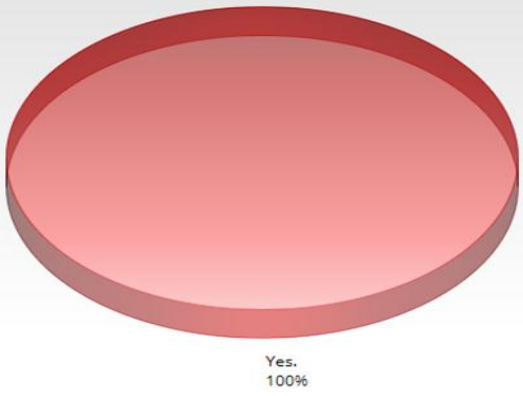
8.b.Who do you rely on more in dealing with daily challenges/ encountered issues?



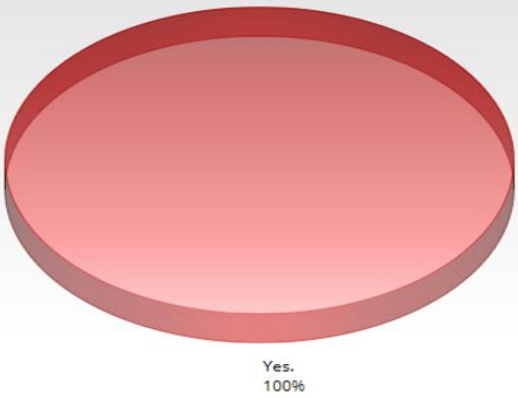
8.d. What value do networks have and how can they be used to better manage knowledge/ improve teaching?



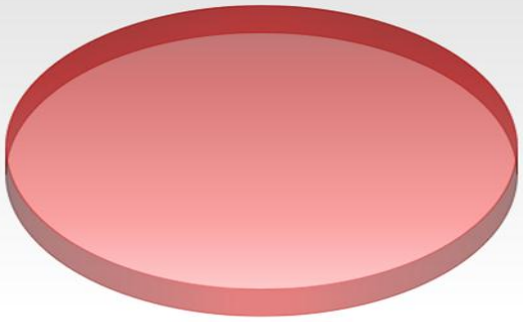
9.b. Do you think that online platforms are an easy way to acquire and share knowledge?



9.c. Do you think teachers need online platforms for their professional development?

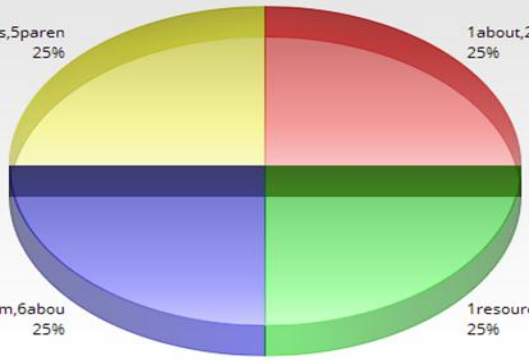


9.d. If we are about to use an online platform in our high school, what content would you like to find there?



Courses,news,catalogues,resources, forum.
100%

9.f. Can you rank the categories of content from 1 (the most important) to 6/x (the least important)?



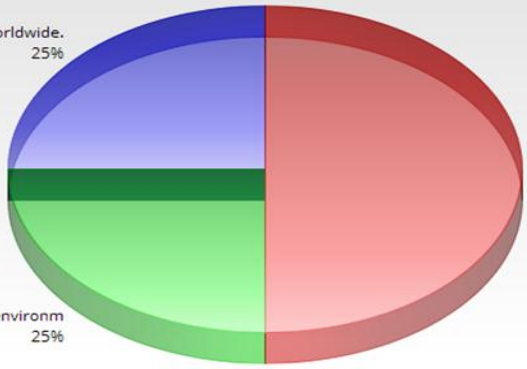
1news,2prof.development,3teachers,4students,5paren
25%

1about,2teachers,3news,4forum,5students; 6parents,
25%

1parents,2peers,3courses,4conferences,5forum,6abou
25%

1resources2courses3news4activities5parent6exams
25%

9. g. How would you see a perfect environment to transmit resources, knowledge and expertise?

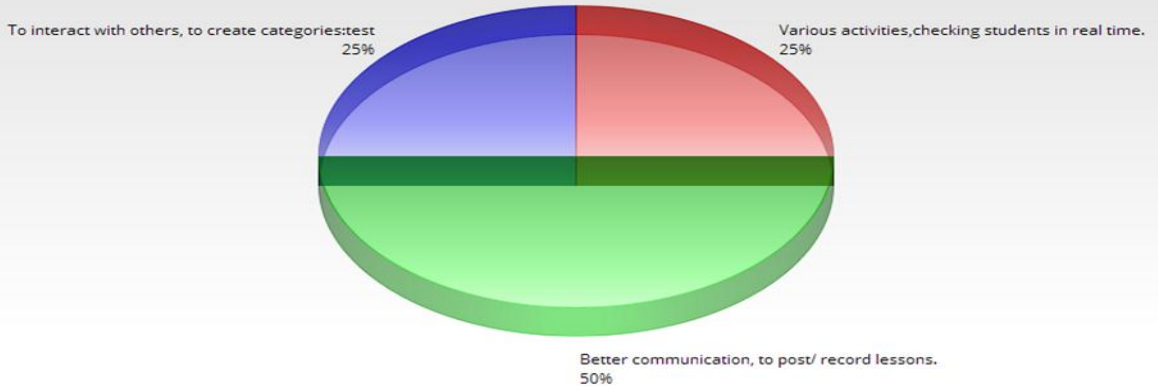


To be accessed by teachers worldwide.
25%

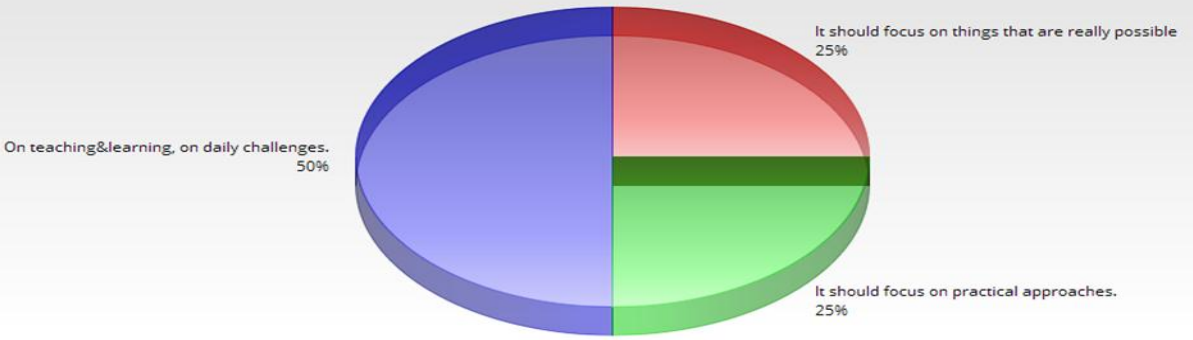
To be up-to-date, helpful, accessible, suitabl
50%

To discuss ideas on teaching, stimulating environm
25%

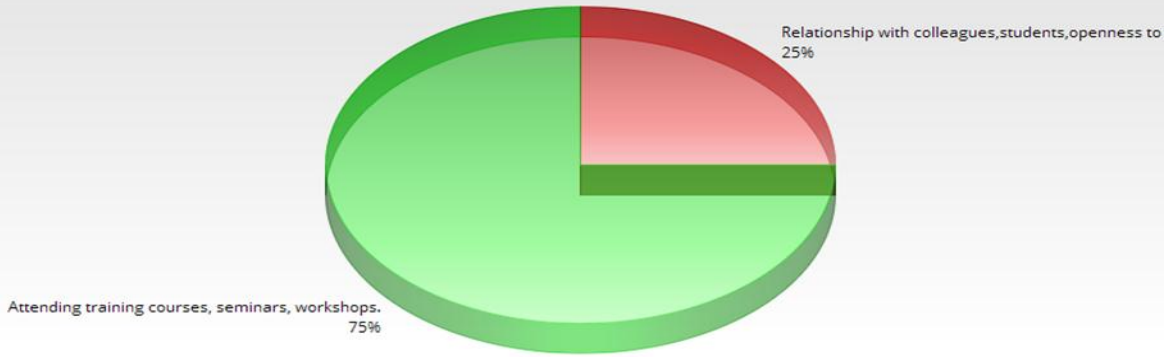
9.h. How would you use a platform to manage knowledge? How would you organize activities there?



10.c. How would you see an ideal workshop for professional development? Or on what should it focus?



11. Please mention the most important aspects that contribute to your professional development.



Annex 7: Non-Disclosure Agreement

NON-DISCLOSURE AGREEMENT

This test of implementing a knowledge management strategy in education is conducted as part of an analysis of the 10th semester master thesis at Aalborg University. The analysis is carried out in connection with "Mircea Eliade" high school teachers in Galati, Romania. With signing this contract, the participant allows the results of the test to be used in the context of the thesis mentioned above, as well as consent to being screen, video and audio recorded. This will only be used in analyzing the results after the test is completed.

The results will be considered of confidential nature. Upon publication, participant will appear anonymous.

The undersigned student hereby declares that all acquired and experienced information will be treated accordingly and will not be passed on to a third party without the written consent of the participant.

It must be pointed out, however, that the data will be made available to University authorities and to the Ministry of Higher Education and Science.*

……..	……
Participant	Student

*Due to their authorization, external examiners are bound by professional secrecy, cf. section 152b of the Danish Penal Code.

Annex 8: SECI Questionnaire

1. Please mention your name, the subject you teach and the number of years of work experience that you have. ……...……

2. The SECI model explains how knowledge is created, transferred an applied in the interaction between explicit and tacit knowledge.

a. *Process of socialization*- please try to reflect on your informal learning from experience sharing and exchanges about the teaching process.

What do you share about teaching in workshops, conferences or other interactive activities? How much do you share? Why do you do it or what reasons do you have not to do it? How can you develop the 21st century skills of your students to provide qualitative education and to better prepare them for the future career?

……..……
……

b. *Process of externalization*- please try to suppose that you have just finished a course on Introduction to Information Technology, or you just have to remember what the course was about if you took it some time ago, where you have found creative and constructive ways to integrate technology in the classroom and you could sharpen your skills and expertise to ensure a quality education.

Present your learning experience in a report or written material.

……
……

c. *Process of combination*- please try to imagine that you are engaged in a collaborative activity and you have to work on a methodological problem solving task. Write an instructional guide about: What are the best ways to enhance students' motivation? Emphasize the causes that trigger the desire to learn; describe how they provoke interest and involvement in your subject when students are not interested in it and give examples of how you encourage students by deed or words (i.e. how you choose activities, topics, your attitude to class participation, how your own behaviour and enthusiasm may be sources of inspiration, or how your own conscientiousness and humour may influence students).

……
……

d. *Process of internalization*- Read three online articles about working with students at different levels. Plan an activity for teaching writing for exams, involving students who are at different levels. Mention how you deal with the situation, what materials do you use (if they are different materials or the same materials but students do different tasks), and how is the activity organized (group-work, pair or individually)……..

Annex 9: Final Solution: Prototype for Edu Moodle Romania online platform

Figure 1. Final solution for the Prototype

Figure 2. Current Edu Moodle Platform

Figure 3. Account for Mircea Eliade High School

Annex 10: Links to Audio Files

https://www.dropbox.com/home?preview=Principal+interview.m4a

https://www.dropbox.com/home?preview=Elena-Interview+person+1.m4a

https://www.dropbox.com/home?preview=Cris-Interview+person+2.m4a

https://www.dropbox.com/home?preview=Adri-Int.+person+3.m4a

https://www.dropbox.com/home?preview=Alina+Int+person+4.m4a