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CONTENTS

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HOW CAN COLLABORATIVE LEARNING SUPPORT PERCEIVED COLLECTIVE EFFICACY?

BY

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Abstract. From a perspective of improving our knowledge of the collective approach to learning as a factor of success, this study focuses on the effect of collaborative work on self and collective efficacy. A semi-controlled experiment was conducted with thirteen trinomials of undergraduate students in the computer sciences field to collaboratively carry out a remote review exercise. They used a collaborative platform dedicated to learn Shell language and interacted by chat to solve the problem. Self and collective efficacy were measured before and after the experiment. The results show a correlation between the increase of the perceived collective efficacy and the number of chat interactions between group members and the use of a functionality in the collaborative platform.

Keywords: higher education; STEM; CBLE.

1. Introduction

Many studies deal with issues related to success in the education and training sector in order to seek solutions to problems of failure and drop out (Romainville & Michaut, 2012). Specifically, the concept of self-efficacy

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(Bandura, 1986) has led to a wide variety of experimental studies to explore the determinants and effects in a lot of contexts. Self-efficacy, which contributes to the individual characteristics of each person, is positively correlated with motivation, performance and success. In the same dynamic, in addition to a skills-based approach, the trend in higher education is toward group learning (Verzat, 2010), with accompanying dynamics that are both human and instrumented. These new ways of learning and working together are also highly anticipated by the economy and industry. However, and strangely, few works concern the collective effect on self-efficacy and thus success. In this perspective, we suggest thinking about the effect of collaborative work on the feeling of efficacy in higher teaching at the university. In the first part, we specify the concepts and definitions related to this research: the feeling of self and collective efficacy as the collaborative work activity. In the second part, we present the methodology implemented as part of the experiment. Third, we present the results, and finally discuss them and conclude on the perspectives of our initial assumptions.

2. State of the Art

Self and Collective Efficacy as an Indicator of Success

Much of the work on self-efficacy comes from Bandura and the socio-cognitive theory (1986), which poses the acquisition of knowledge about observation in the context of social experiences and interactions. This feeling of efficacy is based on three interacting factors: the behavior, the environment and the person. Self-efficacy (SE) refers to an individual's belief in his or her ability to achieve particular performance. The construction and modification of this feeling is related to four main factors: the active experience of proficiency (on a discipline for example), vicarious experience (from observation and social comparisons), verbal persuasion (change in behavior from past experience) and physiological and emotional states.

Regarding the collective dimension, many studies have investigated the motivational and behavioral effects of the perceived collective efficacy (Durham *et al*., 1997; Earley, 1994; Hodges & Carron 1992; Prussia & Kinicki 1996). All these effects, rich in variables and dimensions, still leave doubts about the Self-efficacy (SE) and especially perceived Collective Efficacy (CE) in pedagogy and in the technical and applied disciplines associated with collaborative activities. Cosnefroy and Jézégou's study (2013) is particularly interested in this CE observed during a project-based apprenticeship in engineering school. Their study specifies and confirms the impact of the CE on the performances, the determinants of collective efficacy and the strategies implemented (support, mutual support, calibration of goals, expression of disagreements, quality of interactions, cooperation). To define the CE, we rely

on the terms of Bandura (1997, p.477): "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments". Furthermore, there is a positive correlation between group performance and the CE (Gully *et al*., 2002; Salanova *et al*., 2011). However, there is not necessarily a relationship between the sum of individual levels and the group level of efficacy (Bandura, 2000), meaning the addition of individual SEs does not directly give the CE of a group and does not systematically affect performance or group success. For example, self-esteem and the valorization of one's own activity may be positively correlated with SE, but this cannot be considered in a general sense, with other possible situations in which paradoxical variances are observed (Lecomte, 2004). In addition, Bandura reminds that the SE is highly contextualized, it is not a perception that can be generalized, but on the contrary it is necessary to study it in specific disciplinary contexts. Nevertheless, the following observation is made: the stronger the CE is, the more motivation is mobilized and subjects are able to adapt, thus leading to a better performance in problem solving (Bandura, 2000). According to Alavi & Mc Cormick (2008), the effect of the CE on the group's performance is all the more evident as the task requires a strong interdependence between the members of the group. Another important aspect in activating collective efficacy is the notion of role that reinforces knowledge within the group and commit true collaboration (Dourish & Belloti, 1992).

From a methodological point of view, measuring the feeling of effectiveness is difficult given the specific variables and contexts of each environment. It is generally carried out through the administration of questionnaires that reproduce scale items validated in other studies by adapting them (*i.e*. Watson *et al*., 2001; Matsueda & Drakulich, 2016). Many studies attempt to reduce the minimum number of items in their field to obtain meaningful, unbiased data (Bruton *et al*., 2015).

Collaborative Learning Process

Jacobs, Sokol and Ohlsson (2002) define collaboration as an activity carried out by several people to achieve shared goals. Where there is cooperative work, the group divides the tasks to be carried out into several parts of the problem worked individually, whereas in the collaborative work, the members are responsible for their tasks and those of the other members of the group with the same common goal (Gokhale, 1995). Although differentiated, these processes are usually nested and interact simultaneously, successively or not at all according to the situations observed. Talon, Toffolon & Warin (2013) particularly note this distinction between cooperation and collaboration from a methodological point of view for an active collaborative pedagogy. In the framework of collaborative learning, Dillenbourg (1999) defines the word

collaboration in four aspects of learning: a situation, interactions, learning mechanisms and finally the effects of this type of learning. This leads us to a collective definition of collaborative learning seen not as a theory, but as an approach, including the group that acts "as an agent of motivation, a means of mutual support and mutual support and as a privileged place of interaction for the collective construction of knowledge" (Henri & Lundgren-Cayrol, 2001, pp. 42-43 – translated from French). It also refers to the agentic aspects and the way placing the group as the main actor and primary resource of the collaboration by playing a role of support and motivation (Henri & Lundgren-Cayrol, 1996).

From a methodological point of view, and in order to analyze the collaborative process, some studies use platforms that record the activity of group members during the remote design of the task (Dyke *et al*., 2009). For example, Mailles Viard Metz *et al.* (2015) study deals with the process of remote co-design. To deeply understand the process, the authors carry out an experiment on the usefulness and usability of a shared whiteboard and analyze the chat interactions between members and the actions conducted on the platform.

Research Questions

Thus, the state of the art raises the question of the effect of collaborative work on the feeling of personal and/or collective efficacy, but also the link that may exist between the different measures of this feeling in a context of collaborative work during a learning activity. The work also focuses on the difference between a feeling of efficacy in terms of disciplinary knowledge and that of collaborative work.

Our goal is to determine if collaborative work in a learning situation improves those feelings of efficacy. The literature has allowed us to identify three feelings of efficacy that may be interesting to measure in this context: Self-efficacy related to the Discipline (SE-D), the one related to Collaborative Work (SE-CW) and finally the Collective Efficacy (CE). We assume that carrying out collaborative task in a learning situation will increase the different feelings of efficacy.

On the basis of this assumption, we design an experiment in which we observe several dependent variables: measurements of pre- and post-experimental feelings on the different dimensions of the SE (SE-D, discipline; SE-CW, collaborative work) and the CE. The interactions between members of the groups during the performance of the task as well as the actions of these members indicate the intensity of the exchanges during the accomplishment of the collaborative work task (independent variable). These variables are all recorded in time, in moments of feeling before or after the experiment, and during, with a precise timestamp of the actions and interactions during the activity.

Methods

Participants

Thirty-nine participants were asked to perform this experiment. These are students enrolled in the first year of a technological university course (in France, Diplôme Universitaire de Technologie [DUT]). This training, so-called professionalizing (which includes the realization of projects and internships in companies), generally takes place over two years after secondary education. Students are selected after the baccalaureate on the basis of their results in the last two years of the secondary school curriculum (high school) and a cover letter. In our study, the specialty is computer science and the students are aged 17 to 19 years, mostly male (30 men for 9 women). The experiment is part of an exercise to review computer programming courses in Shell language. The pedagogical objective is to carry out a collaborative exercise in order to revise a computer language. For experimental purposes, a collaborative work platform is used to record interactions. In this context, each participant is assigned a pseudonym and then randomly assigned into 13 trinomials. Five groups are made up of three men, seven groups with one woman and two men and one group made up of two women and one man. Members of each group are located in different rooms and interact remotely via instant messaging (chat). Students know how to use communication tools (instant messaging in written or audiovisual form) and regularly work remotely via collaborative tools (wiki, shared text editors, project and task management). In this training, students are used to working together.

Task: Shell Collaborative Development Exercise

Students must complete an exercise in their main discipline, computer science. They work in groups to develop a product management and sales application. The organization, coordination and modes of collective interaction are left free.

The conceptual designing of the application is divided into three parts, corresponding to a role assigned to the scripts that each member must design and develop in Shell language. Here, the Shell refers to both the language in which commands are written, and the interpreter in which they are executed. These are pieces of code that must function independently, but whose functional interdependence required by the production objective of the application is expected to compel group members to feel collectively responsible for the work of others and to collaborate in the joint resolution of design problems (Fig. 1).

Each member of each trinomial is therefore responsible for carrying out part of the application (cooperation); the joint work of each member leading to

the final functional application (collaboration); and project and organizational management for the success of the exercise (coordination). These activities are thus articulated by communication, made necessary by the absence of physical co-presence and instrumented by the instant messaging functionality.

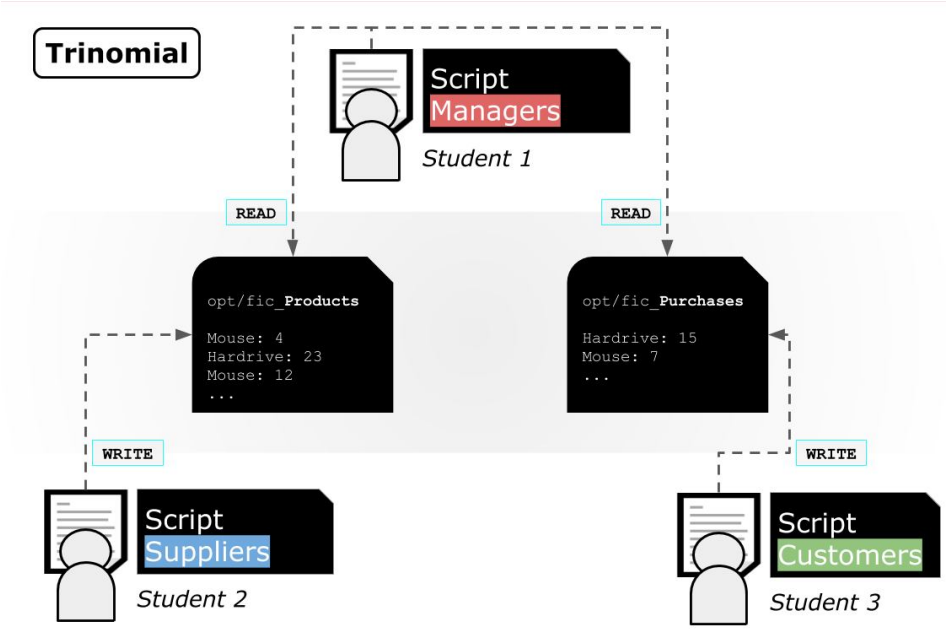

Fig. 1 – Task formalization and scripting roles.

In this context, each role is assigned specific responsibility for the design of a module that constitutes the application. The customer module simulates an order and purchase process for products sold by a company, the supplier checks and supplies the stock of products sold by that company, and the manager, with an amount to meet the customer's expressed need, links purchases and inventory management to the supplier.

These are interdependent tasks with a common objective that are resolved through collaborative design, involving problem reformulation, sharing common representations, generating and managing constraints, proposing solutions, iterative evaluation and cognitive synchronization throughout the activity (Darses *et al*., 2004).

The internal organization of each group to carry out the task being spontaneous, only the time constraint and the specifications containing the algorithms to be developed are imposed.

Materials

In this experiment, we use the Lab4CE platform (Fig. 2), dedicated to computer education (Venant *et al.*, 2017). This makes it possible to instrument, in the form of a dashboard and consoles, all the actions and interactions to carry out the task.

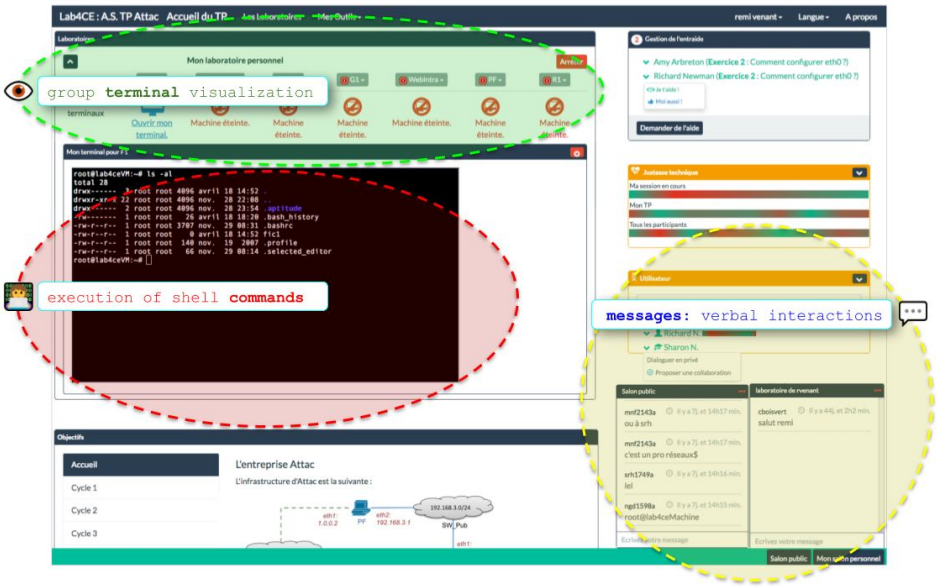

Fig. 2 − Lab4CE platform interface.

This platform also gets functionalities to record the different actions (execution of commands, visualization of group terminals) and verbal interactions. These data can be exported with the timestamp of each relationship performed during the session of the exercise. All actions and interactions can therefore be positioned temporally, individually and collectively, in order to proceed to their investigation according to the type of interaction analysis (Dyke *et al.*, 2009).

In addition to the traces of use from the platform, we also designed two online forms to measure the participants' perceptions of efficacy before and after the experiment using items weighted on a Likert scale. The objective is to assess the different feelings of self-efficacy related to the exercise of discipline and the organization of the collaborative activity as well as the perceived collective efficacy at the group level. The export of these data provides us with

a tool to interpret different levels of feelings perceived by participants at both ends of the activity.

Experiment

The experiment took place at the end of 2017 for 2h30 session. The first minutes are used to present Lab4CE's functionalities by its designers. They explain how the exercises work. The students are then called by trinomials, each of which retrieves a file containing (1) the information necessary for their logins (pseudonyms, spaces to connect to, etc.), (2) instructions on how the session will proceed and (3) exercise statements (familiarization and main exercise) including algorithmic appendices.

Each trinomial member with the same role is assigned to a different computer room (Fig. 3). Upon arrival in the room, students must connect to their machine with their information to access the common virtual space for the exercise. They can communicate with each other through the instant messaging feature. Then they carry out the first step of the training, and perform the main exercise. Five observers are mobilized: two of them are Lab4CE's designers (wishing to evaluate the tool). They constitute an external help and potential resource to support students. Fig. 3 presents the Experimental protocol.

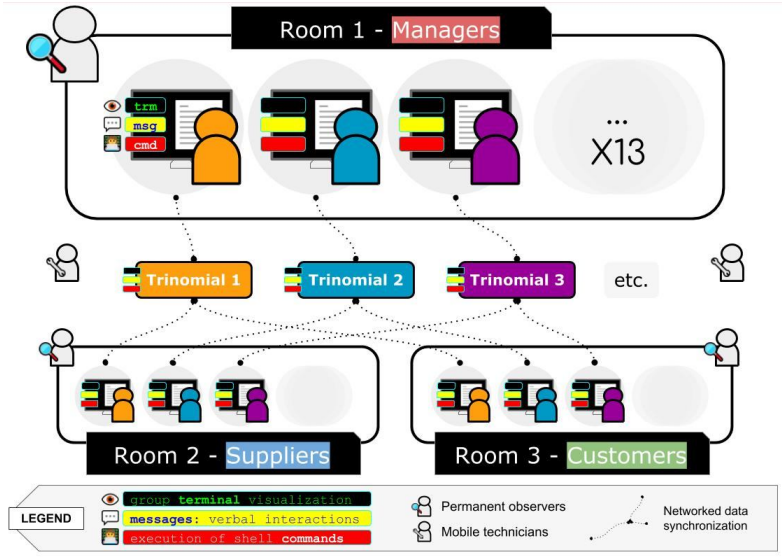

Fig. 3 − Experimental protocol scheme.

Results

Our objective through this experiment is to examine the link between verbal interactions among users, as well as the actions conducted on the

platform. This is to be observed at individual and group level. Thus, considering state of art, the view on the terminal's actions and the number of verbal interactions are expected to be positively correlated with increased sense of personal and collective efficacy.

To verify these expectations, we conducted several Pearson's correlation statistical tests with the number of chat interactions and with the number of views on the terminal. These analyses were conducted first for each group (*i.e.*, group level) and then, for each participant (*i.e.*, individual level).

Number of Chat Interactions and Number of Views on the Terminal per Group

For each group of participants, we calculated the number of chat interactions produced during the collaborative work and the number of views on the terminal. We also calculated their mean score at the sense of Self-Efficacy scale related to the Discipline (SE-D), before and after the collaborative work; their mean score at the sense of Self-Efficacy scale related to the Collaborative Work (SE-CW), before and after the collaborative work; and their mean score at the sense of Collective Efficacy scale (CE). Finally, we calculated their mean evolution at the SE-D and at the SE-CW during the experiment.

SE-D – We conducted Pearson's correlation tests between the number of chat interactions and (1) the mean score at the SE-D achieved before the collaborative work, (2) the mean score at the SE-D achieved after the work, (3) the mean evolution at the SE-D during the experiment. The results revealed no link between the number of chat interactions and the SE-D. We also made Pearson's correlation tests between the number of views on the terminal and (1) the mean score at the SE-D achieved before the collaborative work, (2) the mean score at the SE-D achieved after the work, (3) the mean evolution at the SE-D during the experiment. Once again, the results did not reveal any link between these measures. SE-CW – As for SE-D, we conducted Pearson's correlation tests between the number of chat interactions and (1) the mean score at the SE-CW achieved before the work, (2) the mean score at the SE-CW achieved after the work, (3) the mean evolution at the SE-CW during the work. The results indicated a negative correlation with the mean score at the SE-CW achieved before the collaborative work, $r(11) = -0.65$, $p < 0.05$. When the group had a low mean score at the SE-CW before the experiment, the participants of this group had more interaction during the collaborative work. The test also revealed a positive correlation with the mean evolution at the SE-CW during the experiment, $r(11) = 0.78$, $p < 0.01$. The more groups have interacted during the collaborative work, the more important was the mean evolution at the SE-CW. We also executed Pearson's correlation tests between the number of views on terminal and (1) the mean score at the SE-CW achieved before the collaborative work, (2) the mean score at the SE-CW achieved after

the work, (3) the mean evolution at the SE-CW during the experiment but no link was revealed. CE – Finally, we conducted a Pearson's correlation test between the mean score at the CE and (1) the number of chat interactions and (2) the number of views on the terminal. These analyses only showed a positive correlation between the mean score at the CE and the number of chat interactions, r (11) = 0,57, p < 0,05. The more groups have interacted during the experiment, the more important was the mean score at the CE. Table 1 presents all correlation scores (r).

Table 1

Relation Between the Sense of Efficacy (SE-D, SE-CW, CE) and the Number of Chat Interactions or View on the Terminal at Individual Level

	SE-D before	SE-D after	Evolution at the SE-D	SE-CW before	SE-CW after	Evolution at the SE-CW	CE
Chat interactions	–0.23	–0.19	0.03	–0,65*	0.49	0.78*	0.57*
View on terminal	–0.07	0.07	0.22	–0.28	–0.30	0.02	–0.13

Note. Significant correlation scores (r) are noted with an asterisk (*$p < 0.05$).

To sum up, the number of chat interactions registered during the experiment seems to be link with the mean scores at the sense of Self-Efficacy scale related to Collaborative Work (SE-CW) and the mean score at the sense of Collaborative Efficacy scale (CE). However, the number of views on the terminal seems not to be linked with these different scales at group level.

Number of Chat Interactions and Number of Views on the Terminal per Participant

For each participant, we picked up the number of chat interactions produced during the collaborative work and the number of times he/she looked at the terminal.

SE-D – We conducted Pearson's correlation tests between the number of chat interactions and (1) the individual score at the SE-D achieved before the collaborative work, (2) the individual score at the SE-D achieved after the work, (3) the evolution at the SE-D during the experiment, but we did not observe significant results. We also made Pearson's correlation tests between the number of views on the terminal and (1) the individual score at the SE-D achieved before the collaborative work, (2) the individual score at the SE-D achieved after the work, (3) the evolution at the SE-D during the experiment. The results revealed a negative correlation between the number of views on the terminal and the score at the SE-D achieved before the collaborative work, r (37) = –0.34, p < 0.05. When a participant had a low score at the SE-D before

the work, he looked more at the terminal during the experiment. The results also showed a positive correlation between the number of views on the terminal and the evolution at the SE-D, $r(37) = 0.33$, $p < 0.05$. The more a participant looked at the terminal during the work, the more his score at the SE-D improved during the experiment. SE-CW – We conducted Pearson's correlation tests between the number of chat interactions and (1) the individual score at the SE-CW achieved before the work, (2) the individual score at the SE-CW achieved after the work, (3) the evolution at the SE-CW during the work. The results indicated a negative correlation with the individual score at the SE-CW achieved before the collaborative work, $r(37) = –0.49$, $p < 0.01$. When a participant presented a low score at the SE-CW before the experiment, he interacted more with other group members during the collaborative work. The test also showed a positive correlation with the evolution at the SE-CW during the experiment, $r(37) = 0.48$, $p < 0.01$. The more participants have interacted during the collaborative work, the more important was the evolution at the SE-CW. We also executed Pearson's correlation tests between the number of views on terminal and (1) the individual score at the SE-CW achieved before the collaborative work, (2) the individual score at the SE-CW achieved after the work, (3) the evolution at the SE-CW during the experiment without revealed significant results. CE – Finally, we performed Pearson's correlation test between the individual score at the CE and (1) the number of chat interactions and (2) the number of views on the terminal, but no link was revealed between the CE and the number of chat interactions or the number of views on the terminal. Table 2 presents all correlation scores.

Table 2

Relation Between the Sense of Efficacy (SE-D, SE-CW, CE) and the Number of Chat Interactions or Views on the Terminal at Individual Level

	SE-D before	SE-D after	Evolution at the SE-D	SE-CW before	SE-CW after	Evolution at the SE-CW	CE
Chat interactions	–0.05	–0.07	–0.01	–0.49*	0.17	0.48*	0.25
View on terminal	–0.34*	–0.14	0.33*	–0.13	–0.04	0.06	–0.12

Note. Significant correlation scores (r) are noted with an asterisk (*$p < 0.05$).

To sum up, at an individual level, the number of chat interactions registered during the collaborative work seems to be link with the individual score at the sense of Self-Efficacy scale related to the Collaborative Work (SE-CW), whereas the number of views on the terminal seems to be linked with the individual score at the sense of Self-Efficacy scale related to the Discipline (SE-D).

Discussion and Conclusion

Following an initial study on the perceptions of self and collective efficacy, our research questions extend to the links between the use of a collaborative work platform and the instrumentation of actions and verbal interactions within groups to accomplish a task and solve a problem in the domain of learning computer sciences.

Our study shows that there is a positive correlation between a high sense of self-efficacy in collaborative work and a sense of collective efficacy in relation to a higher number of verbal interactions within groups. This link is confirmed both at the group and at individual level. On the other hand, the view on others' terminals, corresponding to a form of observation/synchronization, does not seem to have any influence at the group level, but more significantly at the individual level of the discipline-related sense of self-efficacy.

These results allow us to draw conclusions in the direction of an efficient instrumentation of active or passive communication functionalities through collaborative work platforms, in order to better promote the different feelings of efficacy that contribute to the achievement of a collective work.

We should now examine more qualitatively the analysis of verbal interactions at the level of their verbatim and categorization to give more meaning to the dynamics that foster collaborative action through intra-group communication. This categorization must be able to reflect, in particular, the different dynamics of problematization, the provision of elements of solution and mutual assistance to contribute to the overall solution of the problem.

This is a further step towards defining what fosters and enhances the emergence of a form of effective collective intelligence through digital collaborative work platforms.

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CUM POATE ÎNVĂȚĂMÂNTUL COLABORATIV SĂ SUSȚINĂ EFICIENȚA COLECTIVĂ

(Rezumat)

Din perspectiva dezvoltării cunoştinţelor noastre privind abordarea colectivă a învățării ca factor de success, acest studiu se focalizează pe efectul muncii colaborative asupra eficacității individuale şi colective. S-a întreprins un experiment semi-controlat cu treisprezece grupuri de trei studenți din domeniul calculatoare constând în finalizarea unei activități la distanță. Ei au utilizat o platformă colaborativă dedicată învățării limbajului Shell şi au interacționat prin chat pentru rezolvarea problemei. Eficiența individuală şi colectivă s-au măsurat înainte şi după experiment. Rezultatele indică o corelație între creşterea eficienței colective percepute şi numărul de interacțiuni între membrii grupului şi utilizarea unei funcționalități în platforma colaborativă.

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LA MATERNITÉ DIVINE DE LA VIERGE MARIE EN LANGUE FRANÇAISE

BY

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Abstract. The present article proposes a semantic and lexical analysis of a series of French words referring to the divine motherhood of Virgin Mary, the one who has given birth to the Son of God. Our analysis addresses a wide range of nouns, verbs, adjectives and phrases belonging to the specialized field of Christian religious terminology (and specifically the Orthodox subfield), such as: *sein* (n.m.) [breast], *Théotokos* (nom propre) [Theotokos], *enfantement* (n.m.) [begetting] – *enfanter* (v.tr.) [beget], *maternité divine et virginité de la Mère de Dieu* [the divine motherhood and virginity of Virgin Mary], *couvrir de l’ombre du Saint-Esprit* [abide in the shadow of the Holy Ghost], *conception virginale* [virginal conception], *entrailles* (n.m. au pluriel) [womb], *irréprochable vs. immaculée* (adj.) [blameless versus immaculate], etc., based on their discursive and poetic usage, within a corpus consisting in several liturgical texts of French Orthodoxy.

Keywords: divine motherhood; Orthodoxy; French language, discursive usage; Mother of God (Theotokos).

1. Argument

Nous proposons une analyse sémantico-lexicale de toute une série de mots faisant référence en langue française à la maternité divine de la Vierge

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Marie, celle qui a mis au monde le Fils de Dieu. Seront analysés des noms, des verbes, des adjectifs et des syntagmes à spécificité chrétienne (et chrétienne-orthodoxe), tels : *sein* (n.m.), *Théotokos* (nom propre), *enfantement* (n.m.) – *enfanter* (v.tr.), *maternité divine et virginité de la Mère de Dieu*, *couvrir de l'ombre du Saint-Esprit*, *conception virginale*, *entrailles* (n.m. au pluriel), *irréprochable* vs. *Immaculée* (adj.), etc., sur la base de leur emploi discursif et poétique, à partir d'un corpus constitué de plusieurs textes liturgiques de l'Orthodoxie d'expression française, notamment des Acathistes et des prières adressées à la Mère de Dieu, dont sa Paraclisis. Comme nous l'avons montré dans toute une série de travaux publiés ces dernières années, l'Orthodoxie s'est enracinée en France à travers diverses émigrations, à partir du début du siècle dernier, où elle est vécue et pratiquée en langue française, se développant une terminologie propre, formée notamment par l'intermédiaire des traductions de ses offices (Dumas, 2009; Dumas, 2010; Dumas, 2014).

2. La Vierge Marie dans le christianisme et sa maternité divine

Dans le christianisme, la Vierge Marie est la femme élue par Dieu parmi toutes les femmes, en raison de la sainteté de sa vie irréprochable, pour devenir la Mère de Son Fils. Il s'agit d'une maternité divine, exceptionnelle, définie par une conception hors-normes et une paternité divine de facture toute particulière aussi. La doctrine chrétienne concernant la conception divine du Fils de Dieu dans le sein de la Vierge Marie, et son enfantement dont le résultat a été la Nativité du Christ est exprimée de façon poétique par plusieurs textes liturgiques que nous avons choisis comme corpus pour notre analyse sémantique et lexicale, dont nous mentionnons tout spécialement l'Acathiste à la Mère de Dieu, la Paraclisis qui lui est dédiée, et de nombreuses prières de l'Église (des offices de la Nativité du Christ, de l'Annonciation et en général, de toutes les fêtes consacrées à la Mère de Dieu. Ces offices peuvent être trouvés en français dans *Le Spoutnik nouveau Synecdimos*, Parme, Diaconie Apostolique, 1997 ou sur le blog « orthodoxologie.blogspot.com. »: https://orthodoxologie.blogspot.com/2018/01/feuillets-liturgiques-de-la cathedrale.html, consulté le 30 janvier 2019). Il s'agit d'un dogme de foi concernant la Vierge Marie qui est vraiment Mère de Dieu dans l'Orthodoxie et le Catholicisme, « parce qu'elle a mis au monde un fils, Jésus-Christ, vrai Dieu et vrai homme » (Le Tourneau, 2005 : 395). Cette vérité a été définie en 431 par le Concile d'Éphèse à l'encontre des affirmations de Nestorius, qui a conféré à la Vierge Marie le titre de Théotokos, « Mère de Dieu » (Dumas, 2010, p. 208). Et c'est ce titre de « Mère de Dieu » ou Théotokos (emprunt grec utilisé notamment dans les textes de théologie orthodoxe, en langue française), qui est resté en usage dans tout le monde orthodoxe en tant qu'appellation et dénomination privilégiées de la Vierge Marie :

> « Jamais on ne l'appelle simplement Marie, ni même la sainte Vierge. Dans l'Orthodoxie, la formule équivalente au « Je vous salue Marie » latin est : *Mère de Dieu et vierge, réjouis-toi, Marie, pleine de grâce, le Seigneur est avec toi, tu es bénie entre les femmes et béni est le Fruit de ton sein, car tu as enfanté le Sauveur de nos âmes* » (Deseille, 2012, p. 124).

L'Acathiste à la « Très Sainte Mère de Dieu » nous présente la définition théologique et événementielle de la maternité divine, ineffable et inaccessible pour la raison humaine : à la question de la Vierge Marie adressée à l'archange Gabriel, lors son Annonciation « Comment est-il possible qu'un fils naisse de mes chastes entrailles ? » (Acathiste, p. 58), la réponse est proposée par l'auteur de l'hymne acathiste dans le Kondakion III (p. 59) : « La puissance du Très-Haut couvrit alors de son ombre celle qui n'avait pas connu le mariage, et elle conçut. Et son sein virginal devint comme un champ de délices pour ceux qui viennent y moissonner le salut en chantant Alléluia ! ». Deux mots sont particulièrement intéressants du point de vue sémantique quant à la transformation du corps de la Sainte Vierge par la maternité : *entrailles* et *sein*. Si au départ, ce corps, chaste, il est vrai, est désigné par la métonymie « entrailles », nom à dénotation profane et presque anatomique, faisant référence « aux organes de la gestation » (http://atilf.atilf.fr/dendien/scripts/tlfiv5/advanced.exe?8;s=651812385), après la conception par l'intervention du Saint-Esprit, et lors de la maternité divine, il est nommé de façon poétique « sein », mot employé de façon presqu'exclusive dans les textes liturgiques de l'Église pour faire référence au ventre maternel de la Mère de Dieu. Le langage religieux connaît en langue française au moins deux expressions construites lexicalement autour de ce nom : « le sein d'Abraham » (« lieu où, selon la terminologie de la Bible, étaient retenues les âmes des justes, ou saints, de l'Ancien Testament, qui ne pouvaient entrer dans le ciel jusqu'à ce que s'accomplit la Rédemption » : Le Tourneau, 2005, p. 578) et « le sein de Dieu » (l'équivalent du paradis : « le séjour des élus, le paradis; l'intimité avec Dieu » : http://atilf.atilf.fr/dendien/scripts/tlfiv5/advanced.exe?8; s=651 812385; consulté le 1 février 2019). On peut remarquer le fait que le trait sémantique dominant reste, dans les deux cas, celui d'endroit sécurisant, demeure paisible dans l'intimité du divin. Quant au nom *entrailles*, il revient dans la prière catholique « Je vous salue Marie » : « Je vous salue, Marie pleine de grâce ; Le Seigneur est avec vous. Vous êtes bénie entre toutes les femmes et Jésus, le fruit de vos entrailles, est béni » (https://eglise. catholique.fr/approfondir-sa-foi/prier/prieres/372212-je-vous-salue-marie). Il est remplacé, comme nous l'avons déjà vu, par le nom *sein* dans la prière orthodoxe correspondante : « Mère de Dieu et vierge, réjouis-toi, Marie, pleine de grâce, le Seigneur est avec toi, tu es bénie entre les femmes et béni est le Fruit de ton sein, car tu as enfanté le Sauveur de nos âmes » (Deseille, 2012, p. 124).

Le Kondakion IV du même Acathiste à la Mère de Dieu (appelé dans la culture religieuse roumaine l'Acathiste « de l'Annonciation ») continue l'explicitation de la nature divine de la conception de la Vierge Marie, fiancée après sa sortie du temple au juste Joseph « pour qu'il soit gardien de sa virginité » (Le 25 mars : Célébration de l'Annonciation de notre Très-Sainte Souveraine et Toujours-Vierge Marie : Synaxaire du monastère Saint-Antoine-le-Grand, p. 55), et qui se voit troubler, humainement, par l'annonce de cette maternité virginale: « Ressentant en lui-même un tourbillon de pensées contradictoires, le sage Joseph fut dans un grand trouble, te sachant vierge jusqu'alors, le voici qui te soupçonne de secrètes relations, ô Tout-Immaculée. Mais, quand il eut appris que ta conception venait du Saint-Esprit, il dit : Alléluia ! » (Acathiste, p. 59). L'Ikos X synthétise, à son tour, la nature divine de cette conception : « Le Créateur du ciel et de la terre t'a couverte de son ombre, ô Immaculée, il habita dans ton sein » (Acathiste, p. 64). Et, selon la doctrine chrétienne, la conception du Fils de Dieu s'est accomplie au moment même où la Vierge Marie accepta de se soumettre au dessein de Dieu, répondant à l'archange Gabriel le jour de l'Annonciation : « Je suis la servante du Seigneur, qu'il m'advienne selon ta parole ! » (Luc, 1,38) (Cf. Synaxaire du monastère Saint-Antoine-le-Grand).

Le même Acathiste nous propose une définition théologique de nature dogmatique de cette maternité divine de la Mère de Dieu: « ce qui se produisit fut une divine condescendance, non un transfert d'un lieu à un autre ; une vierge enfanta rendue féconde par la divinité » (Acathiste, Ikos VIII, p. 63). Elle fait référence au rôle de la Mère de Dieu dans le mystère du salut, dont parle la théologie orthodoxe :

> « Certes, le Christ est l'unique sauveur des hommes. Mais Dieu a voulu que toute l'œuvre du salut accomplie par le Christ dépende du consentement apporté par la Vierge Marie à la salutation de l'ange Gabriel au jour de l'Annonciation ; c'est à ce titre que, en d'innombrables compositions poétiques, la liturgie orthodoxe nous la présente comme associée à l'œuvre de notre rédemption » (Deseille, 2012, p. 125).

À ces définitions théologiques de la maternité divine, dans le même Acathiste il nous est proposée aussi une définition métaphorique de cet événement fondamental pour l'histoire du salut : « Le Créateur nous montra une nouvelle création à nous ses créatures, lorsqu'il germa d'un sein non ensemencé et le garda intact, afin qu'à la vue de cette merveille, nous chantions : Réjouis-toi, Épouse inépousée » (Ikos VII, p. 62). L'image de la germination des semences dans différents sols, en tant qu'expression de l'enracinement de la parole divine dans la vie des chrétiens, apparaît souvent dans les textes liturgiques de l'Église, tout comme dans quelques paraboles du Nouveau Testament.

Le « sein non ensemencé » de la Mère de Dieu fait référence à sa virginité, qualité qu'elle a gardée pendant la maternité, de façon tout exceptionnelle puisque divine. Puisque sa maternité divine va de pair aussi avec sa qualité de Vierge, comme on peut l'observer des appellations doubles et complémentaires (du point de vue du dogme concernant la nature divine de sa maternité), employées à son égard dans notre corpus d'analyse, dans les textes liturgiques au niveau discursif des prières d'intercession ou de doxologie : « Vierge toute-pure et Mère de Dieu » (Paraclisis, p. 23), « Mère de Dieu et Vierge » (Ibidem) ; « par les prières de notre Souveraine toute-pure, la Mère de Dieu et toujours-Vierge Marie » (Paraclisis, p. 24). Cet aspect dogmatique est précisé également dans d'autres types de textes, comme ceux du Synaxaire, très précisément des synaxaires concernant les fêtes de la Nativité du Christ et respectivement de la Synaxe de la Mère de Dieu (fête célébrée le lendemain de la première): « Le Christ apparaît dans le monde sans porter atteinte à la virginité de sa mère » (Le 25 décembre : Nativité selon la chair de notre Seigneur, Sauveur et Dieu Jésus-Christ : Synaxaire du monastère Saint-Antoine-le-Grand) ; « Dieu a choisi la virginité pour naître corporellement en ce monde » (Le 26 décembre : Synaxe de notre Souveraine, la Toute-Sainte Mère de Dieu : Synaxaire du monastère Saint-Antoine-le-Grand, p. 26).

La maternité divine de la Vierge Marie va de pair également, ou en égale mesure, avec sa qualité d'Épouse de Dieu. Du point de vue discursif, elle est exprimée dans plusieurs prières, sous forme d'appellation (« Épouse de Dieu »), utilisée à l'égard de la Mère de Dieu : « Par tes prières, ô Épouse de Dieu, délivre-moi des liens du péché » (Prière de minuit à la Très sainte Mère de Dieu, dans *Manuel de prières du chrétien orthodoxe*, p. 18); « car tu as enfanté le Christ, lui qui procure la sérénité, ô Épouse de Dieu, seule toute pure » (Paraclisis, p. 12) ; ou encore : « Toi qui as enfanté le Seigneur, […] apaise la tempête de mes péchés, ô Épouse de Dieu » (Paraclisis, p. 14). Du point de vue lexical, cette qualité qui constitue un aspect doctrinaire est rendue par l'adjectif *inépousée*, composé spécialement dans ce sens, pour exprimer cette particularité toute exceptionnelle d'une maternité qui s'est déroulée lors d'un mariage non consommé de façon humaine, à travers une conception virginale et divine. Il est utilisé notamment dans l'Acathiste à la Mère de Dieu, pour désigner cette virginité que Marie a gardée dans son enfantement (Dumas, 2010, p. 116).

La maternité divine de la Vierge Marie va de pair aussi avec sa qualité de médiatrice sans faille auprès de son Fils (« médiatrice permanente auprès du Créateur » : Paraclisis, p. 19) pour tous ceux qui s'adressent à elle en prière, en lui demandant d'intercéder pour eux : « toi qui as enfanté d'une manière ineffable le Verbe de Dieu, intercède instamment auprès de lui, car tu possède l'assurance d'une mère » (Paraclisis, p. 17). Comme il est affirmé de façon explicite dans cette dernière séquence discursive, c'est en vertu de sa qualité de Mère de Dieu que son intercession auprès de son Fils (qui est en même temps le Fils de Dieu) pour les chrétiens qui le lui demandent est considérée infaillible.

3. Verbes, adverbes, noms, syntagmes verbaux et nominaux au service sémantico-lexical de la maternité divine

Du point de vue lexical, la maternité de la Vierge Marie comprise dans le sens d'accouchement, nommé exclusivement *enfantement* dans son cas très précis et spécial, est désignée dans les textes liturgiques de notre corpus par quelques verbes et syntagmes verbaux, tels: *mettre au monde, enfanter, engendrer*. Voici quelques exemples d'emploi de ces verbes dans la Paraclisis et dans l'Acathiste consacrés à la Mère de Dieu: « Toi qui *as mis au monde* notre Sauveur et notre Dieu, ô Vierge » (Paraclisis, p. 11) ; « car tu peux tout ; toi qui *as engendré* le Christ puissant et fort » (Paraclisis, p. 12) ; « Tu as ineffablement *engendré* la Lumière » (Acathiste, Ikos II, p. 58) ; « toi qui *as enfanté* le Seigneur » (Paraclisis, p. 14) ; « toi qui *as enfanté* le Compatissant, le Sauveur de tous ceux qui te chantent » (Paraclisis, p. 14) ; « toi qui *as enfanté* la Cause de la joie, la Paix qui surpasse toute intelligence, la divine Lumière qui était avant tous les siècles » (Paraclisis, p. 15). Les occurrences du verbe *enfanter* sont si nombreuses dans les textes liturgiques, qu'il peut être considéré comme un leitmotive de la maternité divine clairement précisée par la plupart des contextes discursifs de son emploi: « Toi qui as enfanté Dieu, le Sauveur du monde » (p. 17). Il est vrai que la plupart de ses occurrences représentent des utilisations au passé composé, mais il y a aussi des cas où ce verbe est employé au présent, temps verbal qui est récupéré au niveau liturgique comme un présent de l'actualisation de l'agir divin dans le monde, lors de son dessein du salut, comme on peut le voir dans le *Kondakion* de la fête de la Nativité du Christ, populairement appelée Noël :

> « En ce jour la Vierge enfante l'Être transcendant. La terre présente une grotte au Dieu inaccessible. Les anges chantent sa gloire avec les bergers. Les mages cheminent avec l'astre. Car pour nous vient de naître un enfant nouveau-né, le Dieu d'avant les siècles » (Le 25 décembre : Nativité selon la chair de notre Seigneur, Sauveur et Dieu Jésus-Christ : Synaxaire du monastère Saint-Antoine-le-Grand, p. 30).

Dans plusieurs textes liturgiques, le verbe *enfanter* est accompagné d'un syntagme adverbial qui précise la nature doublement extra-ordinaire de la maternité divine de la Vierge Marie ; il s'agit des syntagmes « d'une manière ineffable » (Paraclisis, p. 17), ou « sans corruption » (qui apparaît dans l'hymne *Il est digne*, appelé aussi *Axion estin*, p. 64). D'une part, la nature divine de cette maternité reste ineffable, impossible à décrire, à comprendre ou à expliquer aux hommes, et de l'autre, il s'agit d'une maternité virginale, pendant laquelle la Mère reste toujours Vierge, puisqu'elle n'est pas une Mère comme les autres, mais la Mère de Dieu, qui met au monde Son Fils, le Sauveur de l'humanité déchue.

Le verbe qui désigne, au niveau de la maternité divine, la période de grossesse, dans une perspective maternelle, est en langue française, dans les textes liturgiques orthodoxes, *porter*, employé à des temps différents, comme on peut le voir des exemples suivants: « unique Mère de Dieu, car tu es bonne et tu as porté en toi Celui qui es bon » (Paraclisis, p. 11); « Portant Dieu dans son sein, la Vierge courut en hâte vers Elisabeth » (Acathiste, p. 59); « Tu portes celui qui porte tout » (Acathiste, p. 58). D'autres verbes font référence à cette période de la maternité mais dans la perspective du bébé, du Fils de Dieu porté dans son sein par la Vierge Marie. Il s'agit notamment des verbes *demeurer* et *habiter*, dont la sémantique s'harmonise avec la signification du nom *sein*, exprimant l'idée d'occupation d'un espace sécurisant et pour une certaine période. Voyons quelques exemples d'emploi de ces verbes, tirés toujours de la Paraclisis et de l'Acathiste à la Mère de Dieu: « ô Sauveur, tu demeuras dans le sein de la Vierge » (Paraclisis, p. 25); « Celui qui a habité dans ton sein, le Seigneur qui tient en main toute chose, t'a sanctifiée, t'a glorifiée » (Acathiste, p. 66). Ce dernier contexte discursif mentionne en même temps le fait que cette maternité exceptionnelle (divine et virginale) de la Vierge Marie est récompensée de façon divine par la sanctification de la Mère de Dieu, manifestée dès le moment de sa Dormition, lorsque son corps a été monté aux cieux, comme corps ressuscité, par l'agir divin de son Fils. On retrouve cette narration dans le Synaxaire consacré à cette grande fête du christianisme en général et de l'Orthodoxie en particulier:

> « Lorsqu'il plut au Christ notre Dieu de rappeler à Lui sa Mère, il lui envoya un ange pour lui annoncer cette nouvelle, trois jours à l'avance. Accueillant ce message avec grande joie, la Mère de Dieu, emplie du désir ardent de s'élever vers son Fils, se rendit au Mont des Oliviers pour y prier dans la quiétude, ainsi qu'elle le faisait souvent. […] Puis ayant donné sa bénédiction à tous, souriante, elle remit paisiblement son âme, blanche et plus resplendissante que toute lumière, entre les mains de son Fils et son Dieu, qui était apparu en compagnie de l'archange Michel et d'une troupe angélique. […] Le troisième jour, arriva un des apôtres, sans doute Thomas, qui n'avait pas assisté aux funérailles. Il ne pouvait se consoler de n'avoir pu contempler une dernière fois le corps déifié de la Toute-Sainte. Aussi d'un commun accord, les autres apôtres décidèrent d'ouvrir le tombeau, afin qu'il puisse vénérer le saint corps. Après avoir enlevé la pierre qui en gardait l'entrée, les apôtres constatèrent que le corps avait disparu et que seul le suaire, qui l'enveloppait, restait là, vide, mais gardant la forme du corps. C'était une preuve irréfutable de la résurrection de la Mère de Dieu, de l'ascension de son corps. (Le 15 août : Dormition ou Transfert au Ciel de notre Tout Glorieuse Souveraine, la Mère de Dieu et toujours Vierge Marie : Synaxaire du monastère Saint-Antoine-le-Grand, p. 225).

Pour revenir à la conception, comme point de départ événementiel de la maternité divine de la Vierge Marie, nous devons mentionner que cet épisode est présenté dans les textes liturgiques orthodoxes (en langue française) comme un résultat de l'action divine désignée par le syntagme verbal « couvrir de l'ombre », dont le sujet accomplissant est le Saint-Esprit: « La puissance du Très-Haut couvrit alors de son ombre celle qui n'avait pas connu le mariage, et elle conçut. Et son sein virginal devint comme un champ de délices pour ceux qui viennent y moissonner le salut en chantant Alléluia ! » (Acathiste, Kondakion III, p. 59). Le fragment cité mentionne également, de façon métaphorique, que le sein virginal de la Mère de Dieu demeura toujours virginal après cette conception divine. Se soumettant à la volonté divine de mettre au monde le Fils de Dieu, la Vierge Marie devient le réceptacle humain (le mot apparaît tel quel en tant que dénomination de la Mère de Dieu) du Verbe divin, qui Le « reçoit en son sein » (Cf. Canon de l'Acathiste à la Mère de Dieu, p. 53). Et le nom *sein* désigne par excellence le ventre fécond de la Sainte Vierge, demeure choisie par Dieu pour l'incarnation de son Fils. Le précisent tant les textes des évangiles, que les textes liturgiques de notre corpus, à commencer par celui de la prière qui remplace *l'Axion estin* (*Il est digne*) dans la Liturgie eucharistique de saint Basile le Grand :

> « En toi se réjouissent, ô pleine de grâce, toute la création, la hiérarchie des anges et la race des hommes. O temple sanctifié, ô Paradis spirituel, ô gloire virginale, c'est en toi que Dieu s'est incarné, en toi qu'est devenu enfant le Dieu qui est d'avant les siècles. De ton sein il a fait un trône, il l'a rendu ainsi plus vaste que les cieux […] ». (*Divine Liturgie de saint Basile le Grand*, p. 122).

On retrouve ce nom dans l'évangile selon saint Luc « Tu es bénie entre les femmes et le fruit de ton sein est béni », reproduit par la Paraclisis (p. 21), ainsi que dans l'Acathiste à la Mère de Dieu, où il enregistre de nombreuses occurrences lexicales, dont nous n'en mentionnons qu'une: « Réjouis-toi, sein où s'accomplit l'incarnation de Dieu » (Acathiste, p. 58).

Précisons également le fait que la signification de ce nom est exclusivement celle de « ventre de la maternité », et jamais celle de mamelle, ou organe anatomique féminin qui sert à l'allaitement. D'ailleurs les références discursives à l'allaitement sont très rares dans les textes liturgiques de l'Orthodoxie: « Tu as nourri de ton lait celui qui, d'un signe, nourrit l'univers entier » (Canon de l'Acathiste à la Mère de Dieu, p. 53).

Le résultat de la maternité divine est appelé en langage liturgique « la venue du Christ en la chair » (Acathiste, Ikos IV, p. 60) ou, en langage théologique, l'incarnation du Fils de Dieu de la Vierge Marie: « Le monde angélique tout entier fut stupéfait du grand œuvre de ton Incarnation » (Kondakion IX, p. 63). Le but de la maternité divine de la Sainte Vierge est donc le salut des hommes: « Quand tu voulus accomplir notre salut, ô Sauveur, tu demeuras dans le sein de la Vierge » (Paraclisis, p. 25); « Ô Mère de Dieu, toi

qui as enfanté pour nous le Christ Sauveur » (Paraclisis, p. 26). C'est pour cette raison (dogmatique) que la Mère de Dieu est appelée de façon explicite, « le salut du peuple chrétien » (Paraclisis, p. 31). Ou bien, en termes de théologie dogmatiques:

> « Cette prière de la Mère de Dieu [pour nous les hommes] est d'une qualité telle, […], elle est tellement insérée dans le mystère même de notre salut, que l'Église orthodoxe, dans ses offices liturgiques, n'hésite pas à redire souvent l'invocation Très sainte Mère de Dieu, sauve-nous, sans porter préjudice à notre unique Sauveur » (Deseille, 2012, p. 126).

Voyons maintenant quelques exemples d'emploi discursif du nom *enfantement*, terme qui désigne de façon liturgique la maternité divine, de nature donc exceptionnelle, de la Mère de Dieu : « ton enfantement ineffable » (Paraclisis, p. 26); « Comment peux-tu dire qu'un enfantement suivra une conception virginale (dans ce cas, on a affaire à un oxymore) » (Acathiste, p. 58) ; « Ayant contemplé cet étrange enfantement, devenons étrangers au monde et transportons notre esprit vers les cieux […] » (Acathiste, Kondakion VIII, p. 62). Le nom est présent également dans le tropaire de la Dormition, chanté et répété en permanence pendant toute la période liturgique consacrée par l'Église orthodoxe à cette fête « majeure » (Larchet, 2016, p. 66) de célébration de la Mère de Dieu: « Dans ton enfantement tu as gardé la virginité, dans ta dormition, tu n'as pas quitté le monde, ô Mère de Dieu. Tu fus transférée à la Vie étant Mère de la Vie, et par tes prières tu délivres nos âmes de la mort » (Offices de la Dormition, monastère Saint-Antoine-Le-Grand, France). Du point de vue lexical, le nom *enfantement* est formé par dérivation active à partir du verbe *enfanter*, comme on peut le voir de sa définition lexico-sémantique : « action (et résultat) d'enfanter », c'est-à-dire de mettre au monde un enfant. C'est sous la forme d'un petit enfant que Dieu a voulu se manifester aux hommes, nous dit la théologie dogmatique orthodoxe (Deseille, 2017, p. 241), sous cette forme humble, afin de nous montrer qu'Il est avant tout « humilité, simplicité, pauvreté, dépouillement [ou kénose], totale ouverture, total don de soi » (Deseille, 2017, p. 242). Et Il a fait ceci par amour pour les hommes ; c'est pour que le mystère du salut de l'humanité puisse s'accomplir qu'Il est venu au monde sous la forme d'un petit enfant, après avoir été porté dans le sein de Sa « Toute-Sainte Mère et toujours Vierge Marie » (comme l'appelle les textes de la Liturgie orthodoxe), afin de se laisser crucifier sur la Croix et de ressusciter des morts le troisième jour.

4. Pour conclure : appellations métaphoriques de la Vierge Marie en tant que Mère de Dieu

Comme nous le disions déjà, la conséquence de la maternité divine de la Mère de Dieu a été sa toute-sainteté, sa sanctification ; l'appellation de

« Toute-sainte » (ou *Panaghia*) est d'usage très courant dans les offices liturgiques orthodoxes, « qui la situent dans un ordre à part, au-dessus des Chérubins et des Séraphins, de tous les anges et de tous les saints » (Deseille, 2012, p. 124). Cette qualité exceptionnelle, conférée en vertu de sa divine maternité, est exprimée de façon poétique par plusieurs dénominations qui lui sont attribuées dans les textes liturgiques, dont : « habitacle du Dieu incompréhensible » (Acathiste, Ikos VIII, p. 63), « tabernacle de Dieu le Verbe » (Ikos XII, p. 66); « tabernacle céleste » (Prière de minuit à la Très Sainte Mère de Dieu, *Manuel de prières du chrétien orthodoxe*, p. 20); « éclatante demeure du Maître de la création » (Canon de l'Acathiste à la Mère de Dieu, p. 50) ; « coquillage qui a sécrété pour nous la perle divine » (Canon de l'Acathiste à la Mère de Dieu, p. 51); « vigne véritable qui a produit la grappe mûre distillant le vin qui réjouit les âmes de ceux qui te glorifient avec foi » (Canon de l'Acathiste à la Mère de Dieu, p. 52); « Palais admirable du Seigneur » (Prière de minuit à la Très sainte Mère de Dieu, *Manuel de prières du chrétien orthodoxe*, p. 19).

L'analogie sur laquelle se fondent ces expressions métaphoriques s'établit par rapport au nom « sein », où se conçoit et s'accomplit la maternité divine de la Vierge Marie. Ce sont des images très poétiques, créées par l'esprit humain, animé par le désir de louer ainsi et de rendre grâce à cette femme exceptionnelle choisie par Dieu en raison de sa vie irréprochable pour porter dans son sein et mettre au monde, Son Fils, le Sauveur de toute la race humaine déchue. L'adjectif *irréprochable* est utilisé discursivement dans les textes liturgiques orthodoxes comme un équivalent d'*immaculée*, pas trop employé à cause de ses connotations dogmatiques catholiques, non reconnues par l'Orthodoxie. Le dogme de l'immaculée conception a été introduit dans l'Église catholique et défini comme tel par le pape Pie IX en 1854 et il stipule que « Dès le premier instant de sa conception, par une grâce et un privilège spécial du Dieu tout-puissant, en vue des mérites de Jésus-Christ, Sauveur du genre humain, la bienheureuse Vierge Marie a été exempte du péché originel » (Le Tourneau, 2005, p. 321). L'adjectif *irréprochable* apparaît notamment dans l'hymne *Axion estin* (*Il est digne*) de la Liturgie eucharistique de saint Jean Chrysostome, pour exprimer justement la maternité divine et virginale de la Vierge Marie :

> « Il est digne, en vérité, de te proclamer bienheureuse, Mère de Dieu, toujours bienheureuse et tout-irréprochable et Mère de notre Dieu. Plus vénérable que les Chérubins et incomparablement plus glorieuse que les Séraphins, toi qui sans corruption as enfanté Dieu le Verbe, toi qui es vraiment Mère de Dieu, nous te magnifions » (*Divine Liturgie de saint Jean Chrysostome*, p. 64).

Il s'agit de la prière qui rend compte le mieux, à notre avis, de la maternité divine et virginale de la Mère de Dieu, en termes de théologie

dogmatique, certes, mais d'une grande expressivité poétique et clarté doctrinaire. Elle compte parmi les prières les plus aimées par les fidèles orthodoxes, et l'une des plus fréquemment récitées ou chantées lors de la pratique liturgique de l'Église Orthodoxe, justement pour cette raison qui engendre la place de choix qui y est accordée à la Théotokos.

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MATERNITATEA DIVINĂ A FECIOAREI MARIA ÎN LIMBA FRANCEZĂ

(Rezumat)

Articolul propune o analiză semantico-lexicală a mai multor cuvinte ce fac referire, în limba franceză, la maternitatea divină a Fecioarei Maria, Născătoarea Fiului lui Dumnezeu. Sunt analizate o serie de verbe, de adjective şi de sintagme cu specific creştin (şi creştin-ortodox) precum : *sein* (s.m. : 'pântece'), *Théotokos* (nume propriu : 'Născătoare de Dumnezeu'), *enfantement* (s.m. : 'naştere') – *enfanter* (v.tr. : 'a naşte'), *maternité divine et virginité de la Mère de Dieu* ('maternitatea divină şi fecioria Maicii Domnului'), *couvrir de l'ombre du Saint-Esprit* ('a adumbri de către Duhul Sfânt'), *conception virginale* ('zămislire feciorelnică'), *entrailles* (s.m. la plural : 'pântece, rărunchi'), *irréprochable* vs. *immaculée* (adj. : 'prea-nevinovată'), etc., pe baza folosirii lor discursive şi poetice, pornind de la un corpus alcătuit din numeroase texte liturgice ale Ortodoxiei de expresie franceză.

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MÈRE ET FILS CHEZ FRANÇOIS WEYERGANS DANS *TROIS JOURS CHEZ MA MÈRE*

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Abstract. This novel was rewarded with a Goncourt in 2005 – the same year it appeared at Grasset. A mother near the end of her physical strength (she falls in the garden and stays there for two days, rethinking her past life from afar) and a son, over 60 years old, who comes to live again at home, in order to regain his moral strength, lost along the way. This reciprocal examination leads the son to the ardently desired novel and the mother to a rebalance of the forces in relation to her son, a role she assumes with grace and wisdom. “I didn’t give you an end to your book, but I gave you a fall”, says the mother. A symbolic fall from maternal paradise to the (promised) land of literary glory.

Keywords: maternity; love; literature; Goncourt; anxiety.

Trois jours chez ma mère de François Weyergans est un roman publié chez Grasset, en 2005 et qui a reçu le Prix Goncourt la même année. Avec une carte de visite pareille, on s’attend à un spectacle livresque fait pour impressionner le lecteur par la force narrative, par la beauté des personnages et par une intrigue à bout de souffle. De surcroît, l’auteur ne se trouve pas devant la première expérience de publication ; avant *Trois jours chez ma mère* il y a

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toute une série de textes – *Le Pitre*, 1973, *Macaire le copte*, 1981, *Le Radeau et la Méduse*, 1983, *La vie d'un bébé*, 1986, *Françaises, Français*, 1988, *Je suis écrivain*, 1989, *Rire et pleurer*, 1990, *La démence du boxeur*, 1992, *Franz et François*, 1987, *Berlin mercredi*, 1979.

La lecture à travers le visage de la mère s'avère être décevante, car l'auteur-personnage partage la mère avec soi-même, de manière inégale et injuste. Il ne s'agit pas d'un roman classique, un texte de fiction basé sur des souvenirs d'enfance égrenés pendant le déroulement narratif. Tout au contraire, l'auteur expérimente l'alternance des voix, car François Weyergraf devient François Graffenberg au milieu du roman et, de JE, il se transforme en IL. Tout pour essayer d'écrire ce maudit roman qui se laisse attendre.

Nous nous trouvons, au fait, devant un auteur en proie à son angoisse d'écrivain, devant un sujet qui n'arrive pas à se former et à évoluer, devant une sorte de cabotinisme existentiel et littéraire, car les notations sur soi-même et sur le personnage qui le remplace, quand François Weyergans est fatigué, touchent des territoires d'où la mère est absente : sa vie avec Delphine / Délice, une femme complaisante et formelle, avec ses aventures sensuello-sexuelles d'une nuit ou de deux, avec ses éditeurs tout aussi tolérants et patients par rapport à ses futurs textes et avec l'incapacité de trouver un vrai sujet de roman.

Alors, François Weyergraf « ayant réalisé cinq films et publié dix romans » (Weyergans, 2007, p. 9) a une identité assez consistante au niveau des réalisations personnelles. Une femme, deux filles (Zoé et Woglinde), cinq sœurs, un père évoqué et une mère – encore en vie – qui essaie de lui « donner un roman » et qui ne réussit jusqu'à la fin, qu'à lui offrir une chute, une sorte de séparation ombilicale produite tard dans l'âge adulte du narrateur.

Fils unique entre six enfants, il est le prince de l'affection maternelle, car à dix-neuf ans, quand il quitte le foyer, sa mère trouve que c'est bien tôt, trop tôt. La soixantaine sonnée, il se demande, à son tour, s'il a été un bon père pour ses filles. Certes, question en miroir et en biais, par rapport à sa relation maternelle.

Sa mère est veuve et après quelques années de solitude, elle rencontre un certain Frédéric Trudeau, qu'elle essaye de rendre digérable à ses enfants. Quant à François, il passe à des réflexions de toute nature, y compris l'idée d'un inceste *sui generis* si jamais il couchait avec la fille de Frédéric. Puis, il évoque la relation quasi maternelle avec Claire, sa sœur aînée, et il prétend que, pendant les actes d'amour, il murmure son nom au lieu de ceux de ses partenaires. Je trouve cela un peu forcé, un peu cabotine. François Weyergans sait qu'un peu de sexe, un peu d'ambigu, un peu de mystère sont les ingrédients d'un roman à public, mais il n'en sait pas les doses.

L'épisode de l'enterrement du père dessine une mère sensible et affectée par cette mort et, pourtant, résistant devant cette circonstance grâce à ses enfants. La séquence avec les draps et les sacs en plastique où les gens des services funèbres placent le mort, est anthologique:

> « Je ne sais plus comment nous avions placé le drap du dessous, c'est encore moins facile avec un mort qu'avec un malade. Au moment de la mise en bière j'ai cru que ma mère allait s'effondrer quand les deux employés de pompes funèbres introduisirent sans ménagement le corps de son mari dans un grand sac-poubelle gris » (Weyergans, 2007, p. 21).

Frédéric, « le substitut », a la même voix grave et la même taille haute que le père et le jugement de François envers lui est sans pitié:

> « Nous savions que Maman avait rencontré Frédéric dans une soirée où l'alcool avait sûrement joué son rôle désinhibiteur (trente-cinq ans de vie commune avec l'un, quelques rencontres espacées avec l'autre) » (Weyergans, 2007, p. 25).

Une sorte de vengeance contre une vie amère, explique François plus loin, car cette mère devait – dans sa tendre enfance – « couvrir les frasques de son père » et servir de « tampon entre sa mère et sa tante » (Weyergans, 2007, p. 26). Une histoire d'amour et de trahison qui n'a pas empêché, pourtant, cette femme, aimer un homme et mener une vie paisible avec lui, pendant trente-cinq ans.

Si je cherche encore, dans cette première partie du roman écrite à la première personne, les occurrences maternelles, je tombe sur le dîner préparé par François pour sa mère, notamment son plat favori – homard rôti au four. Résultat méritoire, mère contente.

L'épisode Pascal Robert met, de nouveau, la mère dans une position inférieure par rapport à son fils. On dirait que c'est une sorte de récupération tardive de cette supériorité intrinsèque de nos géniteurs sur nous-mêmes, un avantage que François gère très mal. Pascal Robert apparaît dans leur vie un samedi soir, quand, sortie avec François et Delphine, elle a le goût de l'escapade, car elle permet à cet inconnu de l'appeler « Marie » et de continuer la nuit avec lui. Heureusement, François est là, érigé en croisé vaillant. Le personnage n'échappe pas au complexe du fils protecteur:

> « Si Papa pouvait mourir, je pourrais m'occuper de Maman, me disais-je sans me soucier de la façon dont réagirait la principale intéressée, il ne prend pas soin d'elle, moi je la sortirais dans les restaurants qu'elle mérite, je l'emmènerais en croisière » (p. 43).

Un vrai hommage à la mère, une page raisonnable et agréable du roman. L'auteur continue sur le même ton en avouant: « Ma mère ne m'a jamais puni, elle ne s'est jamais emportée contre moi » (Weyergans, 2007, p. 43).

Cette mère douce va tomber dans le jardin et va rester, pendant deux jours, immobilisée, en entendant le téléphone sonner, incapable d'y réagir, et pourtant, contente de cette dernière rencontre avec la nature environnante:

> « Dans mon malheur, c'était extraordinaire. J'ai vu deux fois le soleil se lever dans un immense ciel mauve et orangé, j'entendais toutes sortes de bruissements, des tintements de cloches. J'appelais au secours. Seuls les animaux m'ont entendue. J'ai vu défiler tous les chiens des environs […] il y a même eu un petit lézard gris, avec un regard si gentil, j'ai pensé à toi, je lui ai parlé. […] Quand j'entendais le téléphone sonner, je savais que c'étaient mes enfants mais j'étais incapable de me mettre debout, ni de ramper » (Weyergans, 2007, p. 227).

C'est presque la fin du roman, une fin réussie, à vrai dire.

Dans l'intervalle, rien d'extraordinaire, du point de vue narratif. Le personnage auteur balance entre ses états d'angoisse, entre ses sujets (que lui-même ne trouve pas fabuleux), entre Ière personne et IIIe personne (dans la mise en abîme pratiquée au milieu du roman JE Weyergraf devient IL Graffenberg, un même François impuissant et frêle):

> « c'est loin d'être la première fois que je choisis un écrivain comme narrateur. Je me sens plus à l'aise avec un écrivain qu'avec un serial killer, un chirurgien ou un ministre. Les écrivains dans mes romans sont de plus en plus déprimés, aux prises avec l'argent, le sexe, leur famille et les concepts opératoires qu'ils opposent aux vérités prétendument éternelles » (Weyergans, 2007, p. 83).

Il faut remercier François Weyergans pour cet éclaircissement si manifeste. Il faut ajouter qu'il n'oublie jamais les consignes de sa mère, cette deuxième voix (de la conscience ?) irremplaçable et efficace: « Tu devrais publier. Les gens vont croire que tu es mort » (Weyergans, 2007, p. 87). D'où cette obsession du roman, traînée d'une page à l'autre et farcie de souvenirs.

L'enfant François se rappelle aussi la première rentrée et le sentiment d'abandon quand il a compris que sa mère n'entrait pas dans la classe, pour les cours, mais l'abandonnait devant la porte d'entrée. Et le feu vert que son père donnait aux films, pour qu'ils soient vus, en séance matinale par François et Maman.

Ce sont des détails attendrissants qui dessinent le visage d'une mère universelle, car on s'y reconnaît tous.

Moins attendrissante, voire cruelle est l'analogie entre l'amour maternel (parfois suffocant) et l'instinct tueur d'un boa constrictor : « Mais les boas peuvent avoir l'envie de vous serrer très fort par pure et simple gentillesse, comme font la plupart des mères, et bien entendu la mienne, et on meurt étouffé » (Weyergans, 2007, p. 76).

Dire qu'il a pris soin de ne pas manifester aucune méfiance apparente à l'égard de sa mère, à la suite de cette découverte, ne peut appartenir qu'à François Weyergans.

À l'âge adulte, François se sent coupable d'avoir oublié sa mère, de l'avoir trop peu visitée, de l'avoir trop rarement embrassée. Alors, il se décide de passer la voir et même de passer trois jours chez elle, jours qui deviendront cruciaux pour son roman (à un moment donné, il passe un mois chez sa mère, en vue d'écrire, mais le confort assuré par la demeure familiale s'avère être plutôt contraignant que propice à l'écriture, d'où, peut-être, la réticence de l'auteur de faire un nouvel essai). Le seul exercice scriptural c'est épistolaire, comme un danseur qui s'assouplit à la barre avant le spectacle. Mais le spectacle du roman n'est pas encore prêt. Il prend des notes, sa mère, heureuse, croit qu'il travaille et nous, les lecteurs, nous sommes devant un roman qui n'est pas un roman. C'est plutôt un récit parsemé de souvenirs : la mère emmenant l'enfant qu'il était à la messe, très tôt le matin, la mère en faisant du théâtre pendant sa jeunesse, la mère en savourant un repas fin avec son fils.

François Graffenberg ressemble beaucoup à l'autre François. Il mène à peu près la même vie que son *alter ego* précédent, plus érotique pourtant. Un masque nécessaire et double pour François Weyergans dit Weyergraf. Derrière, un portrait : « un visage blême et crispé, le sien, avec son front reconnaissable, haut et dégarni, ses paupières gonflées et sa bouche aux lèvres minces » (Weyergans, 2007, p. 166). Les cercles de ce lac narratif se multiplient sans cesse. François Graffenberg écrit, à son tour, un roman, dont l'auteur est François Weyerstein. Et c'est à peine maintenant qu'on a la justification du titre et une sorte d'explication:

> «*Trois jours chez ma mère* racontera les aventures et les mésaventures de ce Weyerstein qui, très désemparé le jour de ses cinquante ans, annule tous ses rendez-vous et décide d'aller passer quelques jours chez sa mère pour souffler un peu et faire le point» (Weyergans, 2007, p. 177).

La dernière image de la mère, retenue pour ces lignes, c'est une mise en abîme et, derrière les voiles de la fiction, on espère voir la mère de François Weyergraf Graffenberg Weyerstein:

> « Maman fut-elle jamais plus élégante que le soir de mon mariage lorsque nous avons valsé ensemble dans le salon de l'hôtel particulier de mes beaux-parents, les portes - fenêtres ouvertes sur un parc qui dominait Stuttgart ? […] Nous passions et repassions devant des miroirs où sa robe chatoyait sur un fond de plantes ornementales aux feuilles marbrées de blanc. […] Après les dernières mesures d'une valse […] les musiciens applaudirent Maman à coups d'archet. Je me séparai d'elle et reculai de quelques pas pour applaudir moi aussi. Elle se retrouva seule, charmante au centre de ce vaste salon lambrissé, heureuse d'être à la fois la mère de son fils, et, pour un instant, la reine de la soirée. » (Weyergans, 2007, p. 185-187).

Un emprunt heureux de la fiction à la non-réalité littéraire. Et, peut-être, à la gloire dont aspire François Weyergans.

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MAMĂ ŞI FIU LA FRANÇOIS WEYERGANS ÎN ROMANUL *TREI ZILE CU MAMA*

(Rezumat)

O relaţie inversă apare în acest roman, recompensat cu un premiu Goncourt în 2005 – acelaşi an în care a fost publicat de Grasset. O mamă care îşi pierde progresiv autonomia corporală (cade în grădină şi stă acolo timp de două zile, e, de fapt, o bună ocazie de a-şi reconsidera viaţa) şi un fiu, trecut binişor de şaizeci de ani, care se întoarce să locuiască din nou la ea, pentru a-şi recâştiga forţa morală, risipită pe traseu. Această examinare reciprocă îl conduce pe fiu la romanul dorit şi pe mamă la reechilibrarea forţelor în raport cu fiul ei, un rol pe care-l asumă cu har şi înţelepciune. "Nu ţi-am dat sfârşitul pentru cartea ta, dar ţi-am dat o cădere, spune mama". O cădere simbolică de la paradisul matern în ţara (promisă) a gloriei literare.

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PROFILES OF VOCATIONAL INTERESTS FAVORABLE FOR THE INTEGRATION OF ENVIRONMENTAL ENGINEERING STUDENTS

BY

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Abstract. We approach the study of students' vocational interests as a determinant of the performance in academic activity and the essential premise of personal career strategy, insertion and professional integration at graduation. We treat vocational interests as manifestations of personality, as educated dimensions, expressions of the person's preferences for certain types of activities, for example innovative/conventional, theoretical/practical, individual/team, and certain professional development environments, as would be industrial/ laboratory, in nature/in built space, in institutional space/at the employee's option, etc. The integration of these two variables, the type in question, the environment of the professional activity preferred by the person outlines ten general occupational themes. In this paper, we aim to know the vocational requirements of different occupations in the field of environmental engineering through the perspective of practitioners, specialists working in the respective fields on concrete functions in order to determine the Practical Models of Vocational Requirements.

Keywords: environmental engineering; occupational themes; professional vocation; professional interests; profile.

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1. Introduction

Environmental regulatory measures initiated and implemented in recent decades cover the main intervention plans that should be preserved and, more than that, optimize the quality of the environment. The main directions of intervention are regulated by institutionalizing the implementation of environmental policies by setting up bodies such as the National Environmental Guard, the National Environmental Protection Agency, the Environmental Fund, the Environmental Fund Administration (AFM), specialized services in production companies.

The National Environmental Guard as a public inspection and control institution, established since 2003, is a public authority meant to verify the compliance of dangerous substances and preparations with the provisions of national and Community legislation; it acts under the authority of the Ministry of Environment and Climate Change.

The National Agency for Environmental Protection, a specialized institution of the central public administration, was subordinated to the Ministry of Environment and Forests, with competences in the implementation of environmental protection policies and legislation, conferred by Government Decision no. 1000 of 17 October 2012 on reorganization and the functioning of the National Environmental Protection Agency and the public institutions under its control.

The Environmental Fund is an economic and financial instrument designed to support and implement environmental protection projects, established by Law no. 73/2000 regarding the Environment Fund, functioning at present in accordance with the provisions of Government Emergency Ordinance no.196 / 2005 published in the Official Gazette no. 1193 of 30 December 2005, and Government Emergency Ordinance no. 37/2008.

The Administration of the Environmental Fund (AFM) as a public institution with legal personality, financed entirely from its own revenues, is under the coordination of the Ministry of Environment and Forests and is responsible for the management of the Environmental Fund in accordance with the provisions of Emergency Ordinance no. 196/2005 on the Environment Fund (published in the Official Gazette no. 1193/30 December 2005), with subsequent amendments and completions.

Establishment of public educational and research institutions for professionalization in specific occupations on the whole level of qualifications from the high to the doctoral level, both in technical and natural sciences institutions involves budgeting of protection, prevention and correction activities through national funds (see Environmental Fund) and consistent community. From a phenomenological point of view, direct observation and documentation circulated in science and the media reveal environmental

problems that show more damage than preservation or improvement of the quality of the environment in Romania. Generally speaking, environmental issues address those existing environmental situations that have been generated by past, present and future activities.

2. Evaluation of the Compatibility of Students' Transversal Competencies with the Environmental Engineering Requirements

In the theoretical horizon of psycho-pedagogical and sociological sciences, the professional performance of the specialist is strongly dependent on the compatibility between his personality characteristics - beyond the theoretical and practical knowledge specific to the profession - and particular requirements of the different occupations of the respective specialization. This assertion can also be inferred from the regulatory documentation of the design and organization of higher education programs at national level (*Monitorul Oficial al României, 2011, Ordin privind implementarea Cadrului național al calificărilor din învățământul superior*), where we find that distinct professional competences and transversal competences such as "Autonomy and Responsibility", "Social Interaction" and "Personal Development" have been defined, the latter having the function of boosting the value of premiums.

Trying out after graduating different occupations to identify compatibility is an inefficient strategy that involves certain risks for both the graduate - repeated dissatisfaction leads to the loss of self-esteem with serious consequences - and for the forming institution that jeopardizes its image. At the level of the Bachelor and Master degree studies in Environmental Engineering, we were concerned about knowing some of our students' personality dimensions as an expression of compatibility between the specific requirements of occupations characteristic of academic specialization.

In the context of our previous research we identified:

– A theoretical model of personality attributes for different occupations in environmental engineering presented in a comparative analysis of the vocational interest of the students in different years of study. The investigation consisted of a cross-sectional study, carried out by validating personality dominance and vocational interests with valid instruments, namely DECAS personality inventory validated by Psiho Proiect SRL, namely the Jackson Vocational Assessment System calibrated for Romania by TestCentral. The conclusions of the study showed that by corroborating the results of the two tests, the following general profile of the investigated students (Sava, 2010), JVIS, Douglas N. Jackson, Jackson Vocational Interest Survey, Test Central, (2011), (Ioan & Carcea, 2017):

First Year: Poor, unstructured scientific interests on a sensitive, vulnerable, relatively disciplined background; Third Year: Strong, well-structured scientific interests focused on specialization, emotional balance,

realism, pragmatism in pursuing goals; Master: Poor, unstructured scientific interests, egocentric competitiveness, emotional balance and pragmatism. Based on these results, good performance can only be anticipated for 3rd year students, namely in well-regulated occupations or for further studies in the same specialization (Ioan & Carcea, 2017).

– The structure of the scientific interests of the first-year students gives poor support to vocational training. Various ways of counteracting can be used at the level of the educational institution to increase the learning and professional performance potential, namely: the selection of candidates with higher scientific interest from the admission phase or the specialized counseling of the first-year students for the growth and crystallization of scientific interests relevant to the specialization (Ioan & Carcea, 2017).

– The personality profile of the students of an environmental engineering specialization, presented by Ioan and Carcea (2017) show that despite the fact that a majority of 86% have a well-defined vocation profile, 53% have weak academic interests; for 33% of the students, the preferences for intellectual activities with a consistent abstract component are at medium or inferior level. Reduced preferences for academic study and especially the logical-creative approach of subsequent professional work in the field of engineering as indices of personal development for qualified activity are elements of risk for a performant evolution both during the training and later in the professional activity.

3. Research Methodology

3.1. Research Hypothesis

Specialization in environmental engineering offers a wide variety of occupations that have some common requirements, general for the specialization and some requirements specific to occupations in certain professional functions.

In this preliminary investigation, the knowledge of the general and specific requirements of the different occupations relevant to the field of specialization in environmental engineering is assessed in terms of an introspective approach of the professionals in the field. The requirement in the data collection tool specifies that the respondent should relate to his/her own personality in the field in which he/she carries out his/her activity, to the requirements of his/her specific position.

The data collection tool in the form of an inventory of defined personality features is offered for on-line completion by dissemination in specialized institutions and professional backgrounds, such as the Environmental Inspectorate, The Environmental Protection Agency, Education and Research Institutions, Industrial Environment, independent consultancy companies.

3.2. Presentation of the Data Collection Tool

The Data Collection Inventory (ICT) brings together criteria for characterizing the personality from three interdependent perspectives defined by valid instruments as follows:

– Enhanced personality traits after the Big Five DECAS test adapted for the Romanian population

– Vocational Structured Interests in Occupational Themes JVIS Model

– Interpersonal behavior according to M. Zlate (2004).

3.3. Investigated Sample

A total of 35 professionals with different occupations in the field of the environment responded to the inventory as follows: 13 environmental commissioners, 6 researchers and teachers, 6 environmental counsellors, 5 environmental inspectors in industrial firms, 3 service managers in the field, 1 independent consultant and 1 economist.

4. Results

The results of the survey are displayed in Figs. 1 through 3.

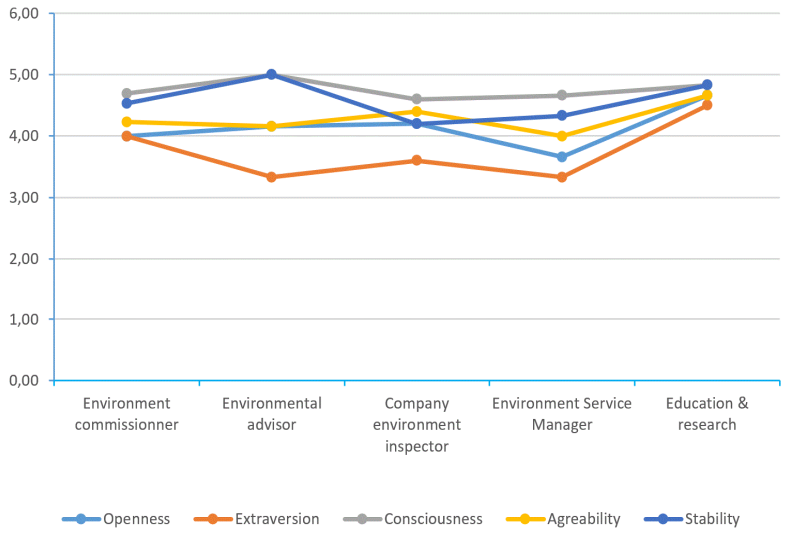

Fig. 1 – Characteristics of representative functions.

Features such as CONSCIOUSNESS and STABILITY are claimed as necessary in the vast majority of occupations; the exception is made by the Environmental Inspector from industrial companies to which AGREABILITY appears to be more important than STABILITY.

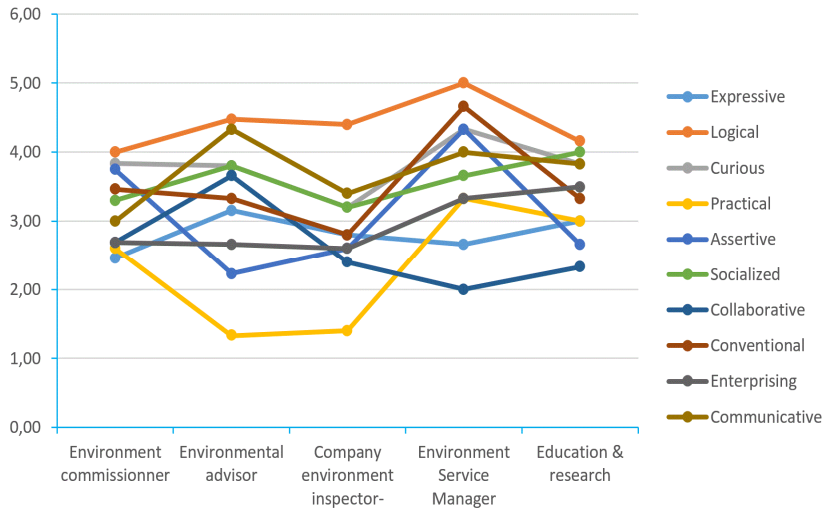

Fig. 2 – Expressed vocational interests in employment themes - support of professional performance

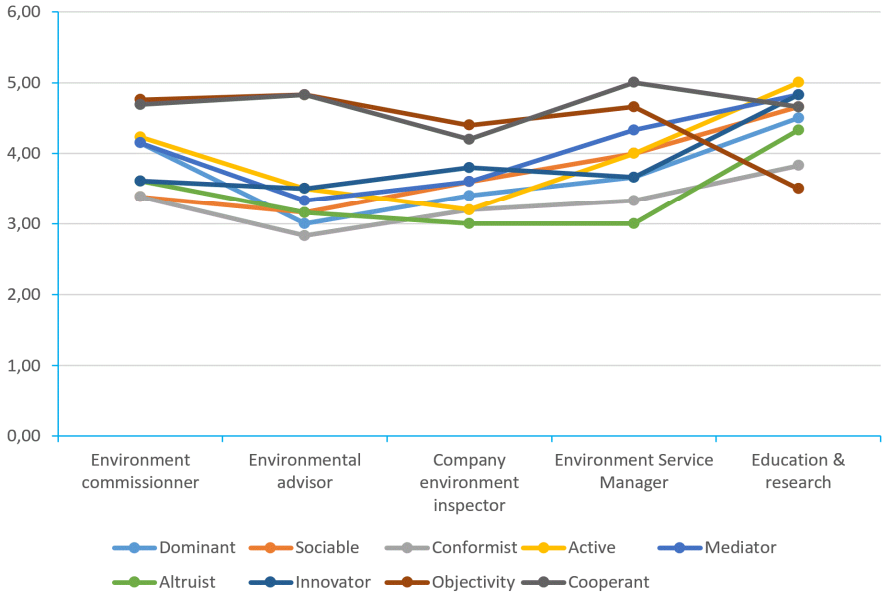

Fig.3 – Expected social behavior in the working environment.

Vocational interests, preference for LOGICAL activities is common to all engineering occupations, in different combinations for different occupations:

o LOGIC + COMMUNICATION to the counselor and the company inspector;

o LOGIC + CURIOSITY to the environmental commissioner;

o LOGIC + CONVENTIONALISM at the environmental services manager;

o LOGIC + SOCIALIZATION to researchers and teachers.

Interpersonal relationships based on OBJECTIVITY and COOPERANT attitudes are common to engineering, except for research and education where ACTIVISM, ALTRUISM, INNOVATION and MEDIATING attitudes are a priority.

The brief analysis of the data allows the following findings to be made:

1. The profile of personality highly compatible with the characteristic activity of environmental engineering is clearly outlined and concerns the following elements: Conscientiousness, Emotional Stability, Logic, Objectivity and Cooperation. Except for emotional stability, these dimensions are educational and must be targeted through explicit teaching activities of cross-curricular training during the undergraduate studies. Topics of self-organizing study, technological discipline, or disciplines such as Organizational Psychology, Leadership and Interpersonal Relationships, Psycho-Sociology of Small Groups/Professional Teams, Creative Psychology, Innovation Techniques, etc., are recommended.

2. Different engineering occupations involve different transversal competencies, meaning that functions with specific guidance and control content require priority of convenience and cooperation, while organizational and leadership functions predominantly require stability, objectivity and compliance with conventions in the sense of severe compliance procedures and algorithms.

In this paper we analyze the way in which the transversal competency formation is reflected in the study programs of the specialization in environmental engineering. The analysis is based on the study of national and international regulatory documents and study programs of a faculty of environmental engineering.

5. The Strategy of the Formation of Transversal Competencies

5.1. The Study of Guidance Documents and Curriculum Projects

In order to analyse the design and realization of the transversal skills training, relevant documents were studied, such as:

– The Matrix of the National Qualifications Framework in Higher Education. The document is valid at national level for all fields of education and defines learning/training outcomes through eight general descriptors of which three relate to transversal competencies and level descriptors on three levels of study: bachelor, master, and PhD. Through the project of the study programs, the mentioned results are to be operationalized for defining, adapted to the field

and specialization of the concrete program, in our case of the bachelor program in the specialization "Environmental Engineering";

– Annex III.2.a - Tool to describe the field/program of study through professional skills and transversal skills;

The document defines the professional competences of two specific structural entities, knowledge and skills; it also defines transversal competences on role and competences of personal / professional development, depending on the name of the qualification achieved by the study program and the occupations accessible to the qualification according to the Classification of Occupations in Romania (COR).

– Annex III.3.b - Instrument for establishing the correlations between professional competences and transversal competencies and content areas, study subjects and assigned credits;

The document associates the disciplines established for each competency defined in the previous annex, specifying the partial or full credits of the discipline related to the competency.

– Curriculum;

The document specifies the disciplines for years of study, the status of discipline according to the mandatory, optional and freely chosen criterion, the theory-practice ratio on each discipline and the credits related to the discipline.

– Curricula-related to cross-curricular subjects.

The curriculum defines the status of the discipline in the program, the objectives of the discipline through which the competences can be achieved and the thematic contents by which the objectives are achieved by categories of theoretical and applied activities.

5.1.1 Analytical Findings

5.1.1.1. Deriving Transversal Competencies

The Romanian National Council of Scientific Research (NCSR) has defined the transversal competencies for the Bachelor's Degree Program in Environmental Engineering based on the Level Descriptor of transversal competencies (the NCSR matrix) – see Table 1.

Comments:

a. Transversal competencies (TC) are globally defined across the curriculum in the sense that the structural elements of the competencies concerned are not specified in years of study;

b. Value or attitude acquisitions are not found in the definition of transversal competencies, even though some formative disciplines of descriptors foresee and address through their content aspects such as: professional and personal development, responsibility, entrepreneurship, social interaction;

c. The structural features of TC's competency do not include the specificity of the engineering profession in terms of restrictions/technological

discipline, awareness of environmental costs/implications and the impact of new technologies on the person, society or the work market;

d. The structural elements of TC2's competency do not include issues that concern specific activities in the diversity of occupations accessible to specialization (e.g. entrepreneurship, marketing, human resources, consultancy, etc.);

e. The structural elements of TC3's competency do not address important issues, such as the consolidation of vocational interests, the cultivation of a constellation of motivations for professional development with career aspirations in the field and at the level of studies, as well as the instrumentation of the gathering, storing and processing of information through modern documentation techniques as a way of increasing adaptability to professional life.

Table 1
Operationalization of NCSR level descriptors

Level Descriptor of transversal competencies (NCSR matrix)	Transversal competencies (TC) defined in the Bachelor's Degree Program in Environmental Engineering
6. Responsible execution of professional tasks under conditions of limited autonomy and qualified assistance	TC1 Responsible execution of professional tasks under conditions of limited autonomy and qualified assistance
7. Familiarization with the teamwork specific roles and activities and the distribution of tasks for subordinate levels	TC2 Familiarization with the teamwork specific roles and activities and the distribution of tasks for subordinate levels
8. Awareness of the need for continuous training; the efficient use of learning resources and techniques for personal and professional development.	TC3 Awareness of the need for continuous training; the efficient use of learning resources and techniques for personal and professional development.

5.1.2. Disciplines Associated with Transversal Skills

a. Depending on the definition of the specific transversal competencies of each study program, the disciplines associated with the level descriptors are different. As it can be seen in Table 2, some programs associate the study of languages with the competency of TC2, whereas others associate them with the competency of TC3;

b. The disciplines associated with transversal competencies are studied predominantly in the second half of the bachelor's programs, in the final years;

c. Some disciplines are formally associated in their entirety with cross-curricular competences, such as modern languages or physical education and sport;

d. The clear majority of the descriptive disciplines related to descriptors do not clearly indicate the level of transversal skills.

Table 2
Formative Disciplines of NCSR Level Descriptors

Level Descriptor of transversal competencies (NCSR matrix)	Formative Discipline Descriptors	Credits
6. Accountable performance of professional tasks, with limited autonomy and qualified assistance.	Topographic practice	0.5
	Real Estate Market / Accounting	2
	Geodetic practice	0.5
	Organization of geodetic works	4
	Cadastre practice	0.5
	Practice for drafting the diploma project	1
7. Familiarization with the roles and activities specific to teamwork and the distribution of tasks for the subordinate levels.	Foreign languages 1	1
	Foreign languages 2	1
	Foreign Languages 3	1
	Foreign Languages 4	1
	Topographic practice	0.5
	Geodetic practice	0.5
	Cadastre practice	0.5
	Practice for drafting the diploma project	1
8. Awareness of the need for continuous training; the efficient use of learning resources and techniques for personal and professional development.	Physical Education and Sports 1	1
	Physical Education and Sports 2	1
	European culture and civilization / Financial analysis and company management	2
	Physical Education and Sports 3	1
	Physical Education and Sports 4	1
	Practice for drafting the diploma project	1

5.1.3. Defining Objectives in Relation to the Transversal Skills Concerned

a. There is a relatively weak correlation between the conceptualization of transversal competencies and the definition of the objectives of the associated disciplines, expected when the transversal competencies are defined in a general way throughout the study program.

b. There is no clear wording in the definition of objectives that will result in the intention that causes a change in the personality of the student because of his/her involvement in the training activity. The formulation of the objectives rather refers either to the delimitation of scientific content or to the work tasks the student must achieve during the training.

c. Specialty disciplines do not refer to transversal competencies, but to relatively independent activities, such as the development of student activities

during seminar or laboratory classes, as well as forms of peer-review, individual projects are activities that contribute to the development of transversal competencies such as autonomy and responsibility, and even personal and professional development.

6. Conclusions

6.1. Analytical Conclusions

A. The study programs analysed deal differently with the structure of transversal competencies: some are very weak, others partially operational, mainly on the ethical and administrative dimension.

PROPOSAL: Elaboration of the scheme for the operationalization of the level descriptors of the NCSR transversal skills in concrete transversal competencies of the study programs.

B. Treating skills developed through language learning as a way of "personal and professional development" is correct.

6.2. Synthetic Conclusions

A. Indicative curricular design documents with diffuse referentiality and low functionality on cross-sectional competencies;

B. Confused interpretations of the structure of transversal role skills;

C. Minimizing / disregarding complementary skills training systems;

D. Limited, formal, weakly operational on the level of personal development.

6.3. Criteria Proposed for Evaluating the Cross-Curricular Skills Strategy

6.3.1. Assessment of Cross-Curricular Training by Theoretical Criteria

The formal criteria agreed within a multidisciplinary team consisting of a psychologist, pedagogue and experienced engineers, as well as concerns about the training of technical design staff are presented in Table 3.

The training program analyzed is characterized by a relatively confusing strategy of training transversal competencies as the objectives are defined in a general way, on the training cycle, without being operationalized on specific objectives, by years of study as shown in Table 1.

In terms of the status of the training strategy, declaratively, the disciplines associated with transversal competencies are mostly compulsory, with credits corresponding to the standards, but these disciplines are not specific to the formation of the defining factors of the transversal competencies. Examples of disciplines specific to cross-curricular training could be:

– "University study and professional career training" - for awareness, instrumentation, motivation of the bachelor study and consolidation of the vocational interests;

Table 3
Formal Evaluation Criteria for University Strategies for Transversal Skills Training in the Field of Technical Specializations at the Technical University

Criteria	Variants	Specificity
Degree of definition	Clear TC training strategy	The categories of transversal competencies are fully and coherently treated
	Confusing strategy of TC training	Cross-skills categories are partially and/or incoherently treated
The status of the cross-curricular training strategy in the training program as a whole	An explicit TC training strategy	The curriculum contains specific disciplines dedicated to the formation of transversal competences. The Discipline list explicitly defines psycho-social (behavioral, interpersonal behavioral/professional group) objectives and contains distinct disciplines for the achievement of these objectives
	Implicit strategy of TC training	The curriculum does not contain specific subjects dedicated to the formation of transversal skills, and the Subject sheet does not contain psycho-social objectives and/ or it does not contain distinct disciplines for the achievement of these objectives
The status of the cross-curricular training strategy in the training program as a whole	Strategies of TC formation with increased educational impact probability	Curriculum auxiliaries (CG – Course Guide, Syllabus, Course Support) have dedicated themed-content
	TC strategies with low formative impact probability	Curricular Auxiliaries (CG, Syllabus, Course Support) DO NOT have dedicated themed-content

– "Psychology of conception work in the industrial field" - for the formation of attitudes favoring technological engineering;

– "Interpersonal relations and dynamics of the professional group" – training of the team's coordination and leadership skills, monitoring and

stimulation, constructive and stimulating hierarchical communication.

The implicit strategy is formally non-existent; curricular documents of specialized disciplines do not refer to transversal competencies, although there are elements foreseen in projects relevant to some transversal competencies, namely:

– Tasks evaluated over time – themes, papers, projects – contribute to the formation of autonomy and responsibility in the individual activity;

– Didactic methods used – team work, group projects – contribute to the formation and consolidation of alternative interpersonal experiences of subordination and coordination, making decisions, etc.

The formulation of objectives in easily observable and appreciable behaviors is an important step in the formation of the skills concerned. From the list of disciplines associated with transversal competencies, it is noted that the formulation of specific objectives sometimes refers to tasks rather than intentions that will cause a change in the personality of the student.

In what concerns the disciplines, some refer precisely to the transversal skills concerned, others do not position themselves correctly (Table 2). Study disciplines associated and correctly positioned to the formation of transversal skills are identified to a small extent (Table 2).

6.3.2. Proposals for Skill-Building Training Strategy

In the current system of transversal skills training in the analyzed study programs, we have not identified a coherent and differentiated strategy on the occupations listed in the Romanian Agency for Quality Assurance in Higher Education accreditation Document, as:

a. The occupations covered by the bachelor's training plan belong to a very wide range of occupations in the COR, at least on the size of the functions from technological engineering to design and research;

b. The defined transversal competencies are directly related to the national matrix of the National Qualifications Framework in Higher Education, valid for higher education as a whole, without being derived from the technical specificity of an engineering program;

c. Transversal competencies are not progressively operationalized by years of study;

d. By the formal criterion used and the disjunctive mode of association of the disciplines, the transversal competencies are treated non-integrated to the overall formation, unitary and differentiated by occupational categories of the specialist.

In order to optimize the current approach, we propose some general measures below:

M1. Establishing an organizational entity of university didactic consultancy to ensure the consistency of supporting documents for the design of

the educational strategy based on professional psycho-pedagogical research through: deductive derivation of the competencies-objectives-contents ratios, information/consultations regarding the behavioral (psycho-social) content of transversal competencies and their explicit and implicit training.

M2. Crediting educational and career counselling programs supervised by specialists in departments of teacher training with higher didactic degrees (self-knowledge, learning to learn, stimulation of vocational interests, self-motivation, professional career training).

M3. Though valuing of the individual identity of the student, the potential of personal development through offers of optional complementary specialization packages certified according to the department of teacher training model, by occupations representative of the level of studies.

We propose the schematic diagram for the drafting of transversal skills as presented in Table 4.

Table 4

Strategic milestones for cross-curricular skills formation

Descriptors of Transversal Skills Training	Related Activities
Defining Strategic Objectives for Transversal Skills	1. To identify the specific skills to the COR occupations covered by the study program, based on broad interdisciplinary research, through the integrated involvement of the academic and the economic environment; 2. Defining the competencies on the three categories of learning outcomes provided by the CNCIS document, depending on the technical specificity of engineering in general, of the occupations covered by the study program; 3. Build the progress scheme of cross-curricular training over years of study.
Associating disciplines	1. Establishing the credit report devoted to the formation of transversal competencies implicitly through specialized disciplines and explicitly through disciplines specific to transversal skills formation; 2. Building the thematic module or specialized disciplines specific to cross-curricular training (Exp. Theory and Practice of the University Study, Engineering Psychology, Leadership and Group Dynamics, Professional Communication, etc.) by cycles and years of study.

Table 4
(Continuation)

Descriptors of Transversal Skills Training	Related Activities
Integration of forms of educational/formative activities	1. Establishing ways in which fundamental and technical disciplines contribute to the formation of transversal competencies, e.g., homework helps increase conscientiousness; independent papers (summaries, syntheses, papers, reviews) help personal development; group projects help to engage in professional co-operation; personalized practice under tutorship helps develop autonomy; 2. Elaboration of counseling programs with a credited contribution to the formation of transversal competencies, especially on the dimension of personal development.

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PROFILURI DE INTERESE VOCAȚIONALE FAVORABILE INTEGRĂRII PROFESIONALE ALE ABSOLVENȚILOR DE INGINERIA MEDIULUI

(Rezumat)

Se prezintă un studiu al intereselor vocaționale ale studenților ca factor determinant al performanței în activitatea academică şi totodată premisă esențială a strategiei personale de carieră, a inserției şi integrării profesionale la absolvire. În consens cu literatura de specialitate, tratăm interesele vocaționale ca manifestări ale personalității ca dimensiuni educabile, expresii ale preferințelor persoanei față de anumite tipuri de activități, de exemplu inovative/conventionale, teoretice/practice, individuale/de echipă, şi anumite medii de desfăşurare a activității profesionale, cum ar fi industrial/de laborator, în natură/în spațiu construit, în spațiu instituționanl/la opțiunea angajatului ş.a. Integrarea acestor două variabile, tipul respectiv mediul de desfăşurare a activității profesionale preferat de persoană conturează zece teme ocupaționale generale. În lucrarea de față ne propunem cunoaşterea cerințelor de natură vocațională a diferitelor ocupații din domeniul ingineriei mediului prin prisma practicienilor, a specialiştilor care activează în domeniile respective pe funcții concrete în vederea determinării Modelelor Practice ale Cerințelor Vocaționale (MPCV).

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THE TEACHER'S CREATIVITY IN FOSTERING ACTIVE LEARNING IN STUDENTS

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Abstract. The paper highlights the paradigms and results of recent research demonstrating the role of teacher creativity in fostering active learning in students. The first chapter highlights the need to use active and stimulating teaching methods to develop skills required for professional and social standards at European level, such as the ability to learn how to learn and the ability to manage the tension between innovation and continuity. Interactive teaching develops critical thinking skills and creative thinking that will generate self-management skills for the individual's life. The second chapter defines creativity, facilitators and inhibitors of creativity, creative didactic styles. Research that shows the role of teacher's creativity in developing active learning skills in students is presented. The paper also emphasizes the importance of active learning in the development of social competencies necessary for young people: empathy, assertiveness, problem solving, prosocial and civic behavior.

Keywords: proactive creativity; active learning; learning how to learn; social competence; civic competence.

1. Introduction

1.1. Active Learning and the Competence of Learning How to Learn

A creative and autonomous education makes available for the pupils/students an interactive environment that allows them to become aware of

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the level of their own knowledge and capable to ask questions, listen, discuss, solve, apply, research, discover, etc. As shown in the literature (Bonwell and Eison, 1991; Prince, 2004; Cerghit, 2006; Boco 2013; Auerbach, Higgins, Brickman and Andrews, 2018), active learning has several defining characteristics. It is a type of learning based on profound individual involvement – intellectual, psychomotor, affective and volitional – of the subject of learning, in acquiring knowledge actively and creatively, and in developing abilities and competences. Active learning uses instructional methods that engages students in the learning process. Students are involved in problem-solving activities, writing assignments, group discussions, reflection activities and any other tasks that promote critical thinking and creative projects. To be actively implicated, students should be engaged in higher-order thinking tasks, such as analysis, synthesis and evaluation (Bonwell and Eison, 1991).

One of the challenges of education was to identify the key competencies in view of having a successful life in the 21st century. The DeSeCo programme (2005 apud Hoskins and Crick, 2008) outlines four analytic elements of the key competences: they are multifunctional; they are transversal in social fields; they refer to a higher degree of mental complexity that includes an active, reflexive and responsible approach to life; they are multidimensional, incorporate know-how, analytic, critical, creative and communicational abilities, such as common sense. Within the project OECD (2001, 182 *apud* Trier, 2002), the participating countries were asked to issue a list of the competencies they consider to be key competencies. In the reports of the countries, four groups of competencies were frequently mentioned: (I) Social Competences/Cooperation; (II) Literary Competences/Intelligent and applicable Knowledge; (III) Learning Competences/Long-life learning; (IV) Communication Skills (Trier, 2002).

The countries in the European Union, in the context of the Lisbon Strategy and the society of knowledge, have also manifested an interest in defining and developing the key competences. A recommendation regarding the key competences for learning throughout one's life, adopted by the Council of Education and the European Parliament in December 2006 (Council, 2006, 13), outline eight key competences. They are: (I) Communication in the mother tongue; (II) Communication in foreign languages; (III) Competence in maths and basic competence in science and technology; (IV) Digital competence; (V) Learn how to learn; (VI) Social and civic competences; (VII) Initiative and entrepreneurship; (VIII) Consciousness and cultural expression.

The competence to learn how to learn can be understood as a complex mixture of knowledge, abilities, values, attitudes and dispositions that support the individual to become a student all life long, being involved in opportunities of formal and non-formal learning. The recommendation of the European Council regarding the frame of key competences helps us understand that

"learning how to learn" is the ability to persevere and persist in learning, organise your own learning through time and information management, both individually and in a group. This competence implies having the consciousness of the learning process and the needs, identifying the opportunities and the ability to overcome obstacles for successful learning. This competence means to process and assimilate new knowledge and abilities, as well as to search and use new orientations. Learning how to learn involves the individual in building based on learning and life experience, in being able to apply that knowledge and those abilities in a variety of contexts: at home, at work, in education and formation. Motivation and trust are crucial for the competent manifestation of an individual (Council, 2006, 16).

In the context of the discussion regarding key competences for life in the 21st century, Helen Haste (2001) identifies a hierarchically superior meta-competence, that of being able to manage the tension between innovation and continuity. School should deal with the development of this competence in pupils and students because it represents a premise both for long-life learning and active citizenship. The author states that, for people to be able to manage this tension, they need to form some additional competences: adaptive assimilation of the technological changes, ability to face ambiguity and diversity, finding and supporting community networks, managing motivation and emotion, moral and civic responsibility.

The new technologies have transformed work division and the relation between man and the natural environment. The concept of work for life has become unrealistic, transforming also the meaning of the notions of profession, ability and learning. Young people should be made responsible and empowered to value these new conditions of humanity. Students have to acquire methods of processing and manipulating knowledge and information. They have to be able to recognise and manage their own processes and ways of learning, to define them in simple local parameters and share them with others. They have to discover solutions to problems and use self-evaluation for the control of direction, intensity and level of their work, thus contributing to the durability of life on this planet.

It is supposed that, regardless of circumstances, once these competences are acquired, individuals have the instruments to create positive social change, by the active following of the opportunities of learning necessary to develop knowledge and abilities to reach a new or better employment. The desired outcome these policies are connected to is represented by the social inclusion derived from the active learning.

The students' formation in an environment characterised by trust, respect, educational values integrated to the social context and the recognition of each person's meaningfulness are essential in developing the competence of learning how to learn. Also important are learning in the context of real life focused on problem and context. Developing the competence of autonomous

learning can increase the students' ability to extract meaning and knowledge from the personal story and society, and the abilities of critical and creative thinking can improve the communication abilities and the academic results, in general.

2. The Teacher's Creative Competences

Human beings naturally have the predisposition of creativity which, through education, can become an actual ability of creation and a defining feature of personality. The law of education mentions the educational ideal of the Romanian school that consists in

> "free, integral and harmonious development of human individuality, in the formation of the autonomous personality and in assuming a system of values that are necessary for personal fulfilment and development, the development of the entrepreneurial spirit, active civic participation in society, social inclusion and employment" (Law of National Education, no. 1/2011, Art. 2, paragraph 3).

Thus, it is underlined that the human behaviour oriented toward freedom, esteem, prestige, creativity and creation in the sense of designing one's own unique identity in personal activities and their results. The formation of the "creative and autonomous personality" imposes the necessity of educating creativity, in-depth study regarding the factors involved, regardless of the way they come from (positive or negative), in other words it is necessary to know both the factors that stimulate creativity and those that act as inhibitors.

The psychology of creativity and the specialists in the field have brought valuable contributions in devising some taxonomies for the blockage and stimulating factors of creativity. The teacher can manifest herself/himself creatively in all the perspectives of the creativity approach: personality, process, product, creative climate, personal development (Caluschi, 2011).

Ana Stoica Constantin (2004) uses an approach to the blockage of creativity at two levels: non-specific and specific. The non-specific plan presents a synthesis of the stimulating factors that are the brakes through their absence. The specific plan refers to the internal blockage of creativity. Thus, the author outlines the following categories of internal blockage: 1. cognitive (perceptual, informational, regarding thinking characteristics) – among these, we can underline the functional fixity, intellectual conformism, difficulty in the divergent approach of solving problems); 2. of personality (temperamental-character and affective type). Among these, we can mention perfectionism versus complacency in mediocre solutions, weak self-confidence and discouragement, fear of failure, fear of being ridiculous, fear of social disapproval, incapacity of assuming intellectual risk.

Knowing the diverse nature of the blocking factors of creativity, it is necessary to focus also on the exigencies that need to be gathered for a generous

creative potential to become manifest creativity. Thus, it is necessary to create an educational climate that stimulates the development of personality and manifestation of the individual's creative destiny. Consistent with the taxonomy view of the inhibiting factors of creativity, Ana Stoica Constantin (op. cit.) also develops a classification of the stimulating factors of creativity.

The internal factors, which manifest at individual level, can be intellectual, special abilities (creative, artistic, social and pedagogical). They are related to personality (self-confidence, wish to change, openness to experience, attitude of exploring).

There are various types of external stimulating factors: a) those that act at collective level (micro-group, team and organisation) and are expressed at various levels: *creative climate*: (structure and functioning of the organisation; composition of interactions of the group; personality and individual behaviour); *leaders* (boss/bosses at different hierarchical levels); b) those that act at society level: *promoted values, created conditions* (material basis; legislation, form of government), *education* (in family, at school; other educational factors, formal or informal), *cultural level* (quantity and quality of information, norms, taboos), *psychological security, personal security, spirit of the times* (social necessity), *"dynamic myths"* (as expression of collective human wishes).

Forming an autonomous and creative personality and reaching socio-professional success represent in fact the art to control, diminish and defeat obstacles, transform totally or partially the blocking factors into actuators and accelerator factors of performance. On this basis, it is necessary not only to know the obstacles, but also the fundamental objectives and the basic means of diminishing them, as well as the factors responsible for the transformation of the inhibiting conditions into stimulating factors of creativity.

The teachers who manifest proactive creativity act creatively even when the social environment is inhibiting. Proactive creativity is a feature having its roots in the individual's personality structure (Davis, Kaufman and McClure, 2011, Lapeniene and Dumciene, 2014), and the individual is guided by internal motivation and constantly oriented toward problem-solving. The teachers who manifest proactive creativity use their personal creativity as an important resource in improving the educational practice. In their case, creativity is important as value in itself and not because it is rewarded by the institutions of educational assessment. Unsworth (2001) and Lapeniene and Dumciene (2014) elaborate a classification of the types of creativity that can be identified and exploited at the workplace in the educational environment. Together with proactive creativity, the authors describe a type of contributory creativity. This type is motivated in an intrinsic way, oriented to clarifying problems and involved in team work and extracurricular activities to solve different challenges. Thus, contributory creativity is correlated to assuming responsibility, respecting commitments, collaboration, involvement and group management. Expected creativity refers to the type of teacher who uses methods

of creativity to respond to the educational objectives also because they help them develop the pupils' motivation and support them in the study. A last type of teachers' creativity can be responsive creativity, which appears as a teacher's formal response to the request of developing the pupils' creativity. In this case, the teacher does not manifest a personal creative style, but can approach creatively certain educational situations that they have to solve and can use, when the didactic objectives impose it, methods to stimulate the pupils' creativity. In the case of the teachers' proactive creativity, the environmental inhibiting factors do not act disruptively, these teachers being creative and flexible. In the case of contributory and expected creativity, the extrinsic motivation and negative emotions can inhibit the creative didactic style and methods. Creativity is a feature that can be developed. Training the teachers' creative features – fluency, flexibility, elaboration, sensitiveness to problems, originality – will generate the diversification of the active teaching methods. Teachers need to develop positive beliefs regarding creativity through activities, materials, examples, research that could promote trust in the educational resources of creativity. The professional opportunities of learning could support teachers to become suppliers of creative instruction (Bereczky and Karpati, 2018) based on practice. Learning the methods of creative problem-solving can determine in teachers openness to find multiple alternatives and solutions, as well as the formation of a democratic style of relating with pupils. This style implies respecting the students' rights, satisfying their educational and emotional needs, and the support offered in their affirmation and the diverse aptitudes they have.

Gordon and Burch (2011) notice that schools are some of the few institutions where the beneficiaries of the services have almost no word to say in qualitative evaluation or the way they are supplied. The industrial and business environment makes an effort to respond to the clients' preferences. Customers can return the objects purchased, believers can influence the priest's choice. But how much power of decision is given to the most important client of school – the student – to decide on the quality of education, the quality of teaching or the work conditions? The authors consider that schools do not receive enough feedback from the actual "consumer" and do not request it. The teacher is the one who can voice the student's discontent, needs and wishes. Teachers could become the students' advocates, proactive stimuli that allow the students' creative psycho-social development. Using the abilities acquired in the field of creativity and the active-creative methodology of teaching and assessment, teachers can have more influence in changing the conditions and practices in school that dehumanize students, do not recognise their civil rights, prejudice their self-esteem, repress their spontaneity and inhibit their natural wish to learn. Empathy, assertiveness, conflict-solving competence can develop if pupils and students will meet teachers who value their personality, help them identify and train their aptitudes, develop their critical and creative thinking

through educational methods focused on the student, develop their abilities to express opinions, who can defend their rights, promote team work and pro-social behaviour.

3. Conclusions

Active learning is a form of learning in which the teaching methodology involves the student in the learning process. In active learning, students are integrated in learning experiences that lead to the assimilation of knowledge, skills development and attitudes consolidation. Active learning engages students in two aspects - doing things and thinking about what they are doing, so they read, write, discuss and solve problems.

Active learning facilitates the development of self-management skills and creative adaptation to the demands of the professional and social environment. The ability to learn how to learn is one of the key competences that ensure lifelong learning. For a person to act assertively and proactively in her/his actions, another important competence is needed, namely to manage the tension between innovation and continuity. This superior competence can be developed by acquiring subordinate skills: adaptive assimilation of technological change, coping with ambiguity and diversity, finding and supporting community networks, managing motivation and emotion, moral responsibility and citizenship.

Teachers using active teaching methods will stimulate their students' critical and creative thinking abilities. They could become social and civic individuals capable of prosocial behavior, demonstrating communication skills, cooperation, empathy, emotional management, assertiveness, conflict resolution, abilities of helping others and community involvement. All these skills prove the individual's ability to manage the tension between innovation and continuity, between novelty and conformism, between change and stability.

Active learning, the development of the ability to learn how to learn, prosocial and civic competences depend on the creative methods of the teacher who acts as a facilitator of interactive education. Teachers should be creative training providers. Training the creative skills of teachers - fluency, flexibility, elaboration, problem sensitivity and originality - generates the diversification of active teaching methods. Learning how to solve problems creatively can help teachers open up to finding multiple alternatives and solutions, as well as building a democratic style in their relationship with students. This style involves respecting the students' rights, meeting their educational and emotional needs, supporting their social success and exploiting their potential.

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CREATIVITATEA PROFESORULUI ÎN STIMULAREA ÎNVĂȚĂRII ACTIVE LA STUDENȚI

(Rezumat)

Lucrarea aduce în atenție paradigme şi rezultate ale unor cercetări recente care demonstrează rolul creativității profesorului în stimularea învățării active la studenți. Primul capitol subliniază necesitatea utilizării unor metode didactice active şi stimulatoare pentru dezvoltarea unor abilități cerute de pregătirea profesională şi socială la nivel european, cum sunt abilitatea de învăța să înveți şi abilitatea de a gestiona tensiunea între inovație şi continuitate. Predarea interactivă dezvoltă abilități de gândire critică şi gândire creativă care vor forma competențe de self-management pentru întreaga viață a individului. Cel de-al doilea capitol defineşte creativitatea, factorii facilitatori şi inhibitori ai creativității, stilurile didactice creative. Sunt aduse în atenție cercetări care dovedesc rolul creativității profesorului în formarea deprinderilor de învățare activă la studenți. De asemenea, se subliniază importanța învățării active în formarea de competențe sociale necesare tânarului: empatie, asertivitate, rezolvare de probleme, comportament prosocial şi civic.

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THE SELF-MANAGEMENT OF LEARNING (I)

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Abstract. The purpose of the article is to define the self-management of learning in the multimedia knowledge society and to draw its profile, using clearly specified criteria, for the students in technical faculties also enrolled in the program for pedagogical training.

The self-management of learning is similar, but not identical to the notion of self-directed learning (Siebert, 2001), self-regulated learning (Zimmerrman, 1989; Negovan, 2009), learning self-determination (Frăsineanu, 2010), self-education (Barna, 1995), self-training (Dordea, 2006), independent learning (Neacşu, 2000).

The self-management concept is defined and described by the actions of anticipation, planning, design, organisation, management, assessment and self-counselling of learning. We develop and present a pyramidal model of self-managerial competences for learning, from the bottom to the top in the following manner: cognitive competencies, metacognitive competencies, motivational competencies, management competencies. This model consists of three synthetic dimensions of self-managerial competencies: learning self-knowledge, self-motivation for learning, learning self-assessment.

Keywords: pyramidal model of self-management; learning self-knowledge; self-motivation for learning; learning self-assessment.

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1. Introduction

Our specialization as a species is the *learning specialization* (Bruner, 1970) and *the knowledge society* in which we live poses new learning challenges (*e.g*. multimedia) especially for students involved in school education or adults in lifelong learning. The competences built in school through non-formal or informal education change according to these societal challenges and, among these, the *learning skills* have a specific profile.

The learning skills are integrated, theoretical and applied systems of knowledge, skills, craft and abilities, of operations and processes, dynamic and flexible, with respect to identifying sources of learning, to the customized processing of information, to achieving learning products.

Irina Maciuc (2007) identifies the following learning skills: searching and obtaining information; properly using existing data banks and the virtual library; multifunctionally communicating in time and space, without constraints; selecting and using interesting websites (the capacity of choosing and informing); creating text, graphics, tables, drawings, flowcharts and diagrams, inserting images into text; developing specific products: journals, abstracts, reports, videos, sites, exhibitions; working in groups in order to explore virtual environments, the ability to perform simulations, to sort and manipulate information/data and to design the final telematic documents; working independently and meeting external or self-imposed deadlines.

Learning in the knowledge society has suffered/caused mutations in the entire personality of the learner: the transition from focused *attention* to the dispersed one, from verbal *thinking* to the imagistic one, from individual *work* to group work, from competitive *attitudes* to collaboration, from theoretical *values* to pragmatic ones. Learning skills in the multimedia, knowledge society, have the characteristics of the *autonomous, responsible, communicative, synthetic, imagistic, collaborative, social, creative, managerial learning.*

2. Methodology

2.1. Objective

1. To make conceptual differentiations*:* self-management, self-directed learning (Siebert, 2001) self-regulated learning (Zimmerrman, 1989; Negovan, 2009), self-determined learning (Frăsineanu, 2010), self-education (Barna, 1995), self-training (Dordea, 2006), independent learning (Neacşu, 2006);

2. To elaborate a model for the self-management of learning;

3. To select a *random sample* consisting of at least 100 third-year students from the 11 faculties of "Gheorghe Asachi" Technical University in Iaşi;

4. To develop a *self-management of learning questionnaire* for technical students based on the model of the three categories of self-managerial competences;

5. *To administer* this questionnaire on learning in the technical field and in the pedagogical one and to collect quantitative results (number of criteria and averages for each question);

6. To identify the learning self-management *profile* of the sample chosen for those three sub-components: learning self-knowledge, self-motivation for learning and learning self-assessment;

7. To interpret *the qualitative descriptive results.*

Conceptual differentiations: self-management, Self-directed learning (Siebert, 2001) self-regulated learning (Zimmerrman, 1989; Negovan, 2009), self-determined learning (Frăsineanu, 2010), self-education (Barna, 1995), self-training (Dordea, 2006), independent learning (Neacşu, 2006).

If concepts such as self-education and self-training can be traced back to ancient philosophers (Socrates, Plato, Aristotle), later on new learning concepts appeared such as adult learning (E. Thorndike, 1928), self-directed learning (Knowles, 1975), the theory of "Personal Responsibility Orientation" PRO (Brocket and Hiemstra, 1991), the self-directed learning test entitled "Self-Directed Learning Readiness Scale" (SDLRS).

Piaget's research on the formation of mental schemes (1920-1975), the research of Vygotsky (1978) on the zone of proximal development, Gardner's theory of multiple intelligences(2005) the theory of emotional intelligence (Goleman, 2008), P. Watzlawick's constructivism (1988), all of these simultaneously make possible and explain the self-management of learning. Piaget emphasizes the *psychological dynamics* that leads to the balance between the child assimilating the world and the accommodation of the child's mental schemes to the ever-changing world. Vygotsky shows that between the child's level of mental development at a given time and the next level, a still undefined area appears, which, by stimulation, can lead to the accelerated development of the child. This was called the *zone of proximal development.* Gardner discovered several types of intelligence: verbal-linguistic, logical-mathematical, spatial, kinaesthetic, musical, intrapersonal, interpersonal, naturalistic and existential and recommended that balanced attention should be paid to all of them in education. Goleman defines emotional intelligence as a person's ability to understand and manage their emotions, to motivate oneself and to have better interpersonal relationships with the help of emotional intelligence. Watzlawick says that the objective reality is accessible to man only under the form of its subjective reconstruction, reinvention and its learning. The constructivist paradigm is the one that accounts for and enables the self-management of learning in an optimal way.

The concepts of self-management, self-directed learning, self-regulated learning, self-determined learning have in common elements such as the

internalization of learning, self-led learning, personal feedback, volitional determinism, education awareness, self-learning, learning responsibility, cooperation in learning.

The internalization of learning involves a shift from learning based on the transmission of knowledge by the teacher to learning based on the student's own acquisition of knowledge (H. Siebert, 2001).

The student's self-management of learning can be identified in the perception, memorisation, processing and updating of knowledge as stages of learning, but also in setting goals, building contents, selecting methods, means and ultimately producing customized learning outcomes.

The personal feed-back refers to the self-monitoring of learning in all its stages and parts. It has motivational, volitional, decisional, and pragmatic tools. The student is his/her own trainer, he/she monitors both the progress he/she has been making, as well as the failures that he/she corrects, sets the degree and the type of motivational and volitional involvement which ensures success, and makes decisions which are beneficial to ensure its long-term stability.

Self-education awareness means not only getting the expected results, but also answers to questions such as: why, how, what kind of goals, what kind of content, which methods yielded these results, how will I use them in the future.

Learning responsibility refers mainly to analysing failures in order to overcome them and not repeating the same mistakes.

Cooperation in learning turns the individual perspective in learning into collaborative learning through group discussion, negotiation, by mutually adjusting knowledge.

Given that managerial aspects are structurally involved and have a coordinating role for the other components, we consider the concept of learning self-management being the most appropriate approach to autonomous, self-regulated, self-determined, self-directed learning.

The concept of self-management responds adequately and significantly to the demands of the knowledge and lifelong education society.

The self-management of learning in comparison with management in general (Joița, 2000) means: anticipation, planning, projecting, organizing, directing, evaluating, and advising one's own learning. Through self-management the student becomes his/her own teacher.

When anticipating learning, the pupil or the student should answer the following questions:

- When will I sit for the exam, test or when will I be evaluated?
- How much time do I have left until then?
- How much do I have to study?
- What other concerns do I have until then?
- What are my priorities?

- How difficult will the exam/test be?
- How important is this exam/test to me?
- What use is the result of this examination/test to me?

Anticipating learning is primarily a matter of *time management*, prioritising tasks, mobilising for action, deciding on the debut of the activity.

Learning planning is more a set of answers than one of questions: "I am going to start studying on Monday, on 1st February", "I am going to study for 10 days", "I am going to portion the subject matter for each day in the following day", "I cannot afford to delay my study more than one day", "I am going to study for four hours each day depending on the studied subject matter". This means learning planning is a matter of time management closely linked to task management.

Learning design is a set of decisions taken in order to establish the purpose and objectives of learning, learning sources, work methods and means, the self-assessment of learning, the desirable results and recording them in a written form chosen by the student.

Organizing learning is an activity that involves learning context, choosing an appropriate space to learn in, choosing the morning period or the evening one, whenever the student learns best,

identifying the material to be learnt, how the student will study: alone, in a group, or both ways.

The management of the learning process is volitional, decisional and pragmatic because it involves maintaining previously taken decisions and the will to learn for a relatively long time, indicating the methods of self-management and the self-management of one's own resources of knowledge, time, information processing, energy and motivational, volitional, attitudinal resources.

The assessment of one's own learning involves operations such as: observing, assessing, correcting, adjusting one's learning according to the pace of learning, the quantity of the assimilated knowledge, its quality and correctness, and its applicability.

Learning self-counselling consists of permanently self-motivating towards learning, changing the pace of learning, the learning methods, the learning context, in order to optimise it and achieve the desired results.

All these components of the self-management of learning are related to each other forming a system so that the interaction between them affects the whole in one way or another.

2.2. Self- directed learning

A similar concept to the self-management of learning is the self-directed learning**.** Siebert (2001) identifies the factors of self-directed learning*:* previous experience in learning, personal factors, learning content, the learning

offer, the learning environment. Table 1 contains the factors of self-directed learning as seen by Siebert.

Self-directed learning depends on the student's good or bad, effective or ineffective past experiences, which belong to a personal repertoire and can be accessed at the moment of the new learning experience. The new learning cannot be built on a shaky, unclear ground, to which the student cannot anchor. Therefore, positive and effective past learning experiences will provide a basis for constructing new learning. However, negative or ineffective experiences can also be exploited in new learning - they become error references that, through observation and self-critical thinking, can teach the student to avoid mistakes, how not to repeat and how to construct winning strategies.

The personality characteristics that, in Siebert's view, lead to self-directed learning are: self-esteem, orientation towards success, exigence level, frustration tolerance. These personality traits are formed, they are not innate, so the parents, the teachers, the pupil/student himself/herself play a part in their formation.

Table 1

Determinants of Self-Directed Learning (H. Siebert, 2001)

Previous factors	Factors related to the person	Learning content	The training offer	Environmental factors
Past experiences	a. Personality characteristics: Self-esteem Success-oriented Exigence level Frustration tolerance b. Characteristics of learning ability: Cognitive structure Metacognition Learning style Perseverance in learning	– tools relevant for identity – intrinsic motivations – time effort – contents – meaningfulness and relevance	– counselling – information help – software – alternatives – chances of success – difficulties	– socio-professional – cultural – time – stress

Siebert also refers to characteristics of learning ability, namely the cognitive structure (concepts, operations, processes) for receiving, processing and reproducing information, the metacognitive, knowing about knowing phenomena, the degree to which the student knows his intellectual, affective possibilities, type of motivation, decision making ability, learning behaviours, learning style, attitude towards studying and leaning (perseverance).

Although we talk about self-directed learning, Siebert shows that the training offer the student receives (knowledge, operations, formed competences) and in which the teacher plays a vital role, the counselling on learning that the

student benefits from or not, even the difficulties that the learner surpasses are all generating factors of a particular profile of self-directed learning.

The social environment, the group to which the student relates, the professional, cultural environment, time, stress are all factors that stimulate or inhibit, build a particular model of self-directed learning in students. This model relies on the interaction among these factors, which is particular to each student.

Analysing the factors of self-directed learning according to Siebert's view, we believe that personal factors are decisive because they are responsible for past experiences, for selecting learning content, for an individual's responses to the training offer and also for the selection of the challenges coming from the social, professional, cultural environment.

2.3. The Skills of Self-Directed, Self-Determined, Self-Managed Learning

We consider that in the self-directed, self-determined, self-regulated learning, in self-education and self-instruction there are multiple categories of skills involved:

– cognitive competences*:* knowledge, skills, abilities, operations, information search processes, selecting useful information, its processing into new, personal, original forms. These cognitive competences synthesize in the student's *receptivity* to new ideas, *perseverance* in looking for novelty, *flexibility and fluidity* of mental operations and processes, orientation to new synthesis, having *dynamic, interactive, interdisciplinary, transdisciplinary and knowledge transfer features*;

– metacognitive competences*:* thinking about thinking, learning self-observation, intervention in one's own cognitive process in order to achieve self-regulation.

I. Cerghit (2002) highlights the many ways that metacognition comprises them.

- knowledge of knowledge (Kardiner);
- knowledge about the performance of one's own cognitive system (J. Piaget);
- acknowledging one's own knowledge (I. Neacsu);
- managing or self-regulation of mental processes (Flavell);
- evaluating oneself and managing one's own cognitive system (Paris and Winograd);
- the ability to monitor progress and knowledge products (E. Noveanu).

Metacognitive skills relate to the cognitive ones and answer the following questions the students ask themselves: What knowledge have I got? How can I obtain it in an easier, better, more efficient way? Through reading, writing or practically ? How do I think best? Through calculations, reflection, starting from the concrete or from the abstract ? What products of thinking do I like: compositions, essays, reports, drawings, diagrams, maps, formulas, calculations?

Motivational competencies: balanced emotionality, strong will, need to learn, intrinsic motivation, learning satisfaction, learning interests and hobbies.

The students having a specific learning experience form their own motivational skills identifying the degree of their emotionality as high, medium or balanced, their type of willingness as strong, weak, continuous or fluctuating; acknowledge their type of motivation as extrinsic or intrinsic and the role that each of them play in learning; form their specific learning interests for one area or another, develop their hobbies in those areas.

The management skills of anticipation, planning, design, organisation, management, assessment, counselling one's own learning. These operations and management processes lead to the construction of various components of time management, of the learning activity, of the objectives, goals, of the contents of learning, of the cognitive and metacognitive competencies, of learning outcomes, of the management of management.

The relationship between these categories of competences may be schematically conveyed in through a pyramidal shape (Fig. 1 below) which has the cognitive competences at its base, the metacognitive skills at the second level, the motivational at the third level, the managerial skills being placed at the top of the pyramid. From the bottom to the top of the pyramid functions the principle of competency determination because without cognitive skills the other types cannot develop. From the top of the pyramid to the base functions the principle of influence because the managerial skills lead to the design, organisation and assessment of other types of competencies as follows:

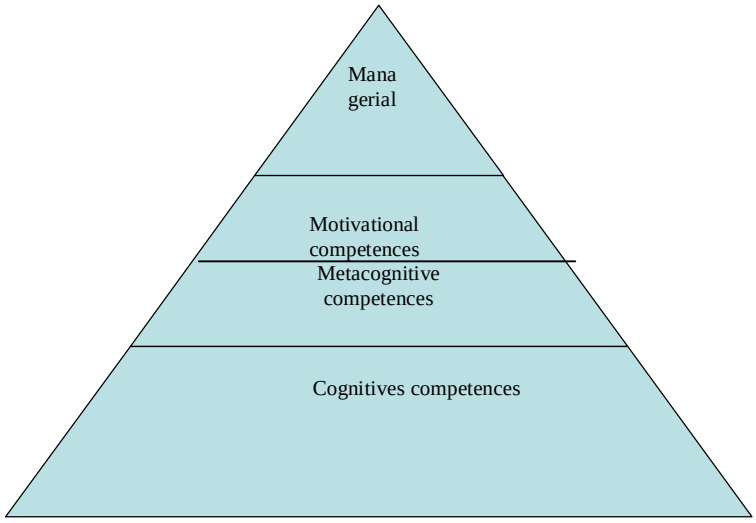

Fig. 1 – The Pyramid of self-managed learning competences.

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SELFMANAGEMENTUL ÎNVĂŢĂRII (I)

(Rezumat)

Scopul articolului este de a defini self-managementul învăţării în societatea multimedia a cunoaşterii şi de a realiza un profil al acestuia, după criterii bine determinate, la studenţii de la facultăţile tehnice care sunt înscrişi în acelaşi timp la programul de pregatire psihopedagogică.

Self-managementul învățării este asemănător dar nu identic cu noțiunile de învățare autodirijată (Siebert, 2001) învațare auto-reglatoare (Zimmerrman, 1989; Negovan, 2009), învățare autodeterminată (Frăsineanu, 2010), auto-educația (Barna, 1995), autoinstruirea (Dordea, 2006), învățarea independentă (Neacșu, 2006).

Conceptul de self-management este definit şi descris prin acțiunile de anticipare, planificare, proiectare, organizare, conducere, evaluare şi autoconsiliere a invățării. Se elaboreaza şi se prezintă un model piramidal al competențelor învățării selfmanageriale, pornind de la bază la vârf astfel: competențe cognitive, metacognitive, motivaționale, manageriale. Acest model este alcătuit din trei dimensiuni sintetice de competențe selfmanageriale: autocunoaşterea învățării, automotivarea învățării, autoevaluarea învățării.