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How Do the Romanian Students Consider the Research Competencies Appropriate for Their Future Career?

Roxana Constanţa ENACHE[1],
Gabriel GORGHIU[2],
Laura Monica GORGHIU[3],
Ana-Maria Aurelia PETRESCU[4],
Camelia STĂICULESCU[5]

[1] Technical University of Civil Engineering of Bucharest, Bucharest, Romania, rocatare@yahoo.com
[2] Valahia University Targoviste, Targoviste, Romania, ggorghiu@gmail.com
[3] Valahia University Targoviste, Targoviste, Romania, lgorghiu@gmail.com
[4] Valahia University Targoviste, Targoviste, Romania, anapetrescu2007@yahoo.com
[5] Academy of Economic Sciences, Bucharest, Romania, camistaiculescu@yahoo.com

Abstract: Students' research competencies are seen today, for any specialist, as necessary, both in terms of their use in academic training but also for the future careers. The analysis of educational practices in various education systems shows that the development of those skills starts sooner or later along the educational paths. We consider that research competencies are necessary in more and more diverse contexts, together with the development of educational practices that should develop the research competences in the initial and continuous training processes.
This study aims to capture the correlation between the perceptions of Romanian students concerning the need to develop research competencies, and the extent to which they are effectively formed in actual higher education programs. The steps made for the development of each career, but also the successful completion of the university studies imply the development and practice of research competencies. The research aims to identify how students from several Romanian universities perceive the need to gather research competencies, what is the meaning of those skills, in what situations are used, but also what barriers are encountered in the research activity. Seeking to minimize any negative impact of research on the well-being status, we believe that a key factor in facilitating well-being is related to responsible research and innovation. Another important aspect of this research is offered by the identification of the respondents' perceptions considering the importance of research in the students' future professional activity, which could implicitly determine the interest in ensuring the individual and organizational well-being. For the present research, we aim to find a correlation of research competencies with the well-being status, to identify the necessary research competencies among the objectives of training, to determine the structural elements of research competencies, to identify situations / contexts in which such skills may be useful, to identify aspects that alters the well-being status in research activities, as well as solutions for promoting the well-being status in research activities.

Keywords: *education, research competencies, well-being, career development.*

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1. Introduction

1.1. What are the competencies?

In the present context of the postmodern society, all the issues related to the development of research competencies represent topic of interest for educational policymakers and practitioners. In this respect, the training and development of the research competencies become more and more weightful for initial and continuous teachers' professional training, at European and international levels.

Our interests regarding competencies, seen as a reference system and aims, are prior to actual contemporary educational policies, promoted mainly in the European space.

The construction of different competencies (and capacities) is approached in pedagogical studies by Piaget (1998), Perrenoud (1998) etc.

Jena Piaget (1998) links the formation of competence with a scheme of action.

Perrenoud (1998) considers competence as a genetic potential of the human spirit ("the ability to act effectively in a given situation"), covering the field of "procedural knowledge" (in the sense of "savoire-faire"), through opposition (and complementarity) with the field of "proper" ("factual") knowledge.

Rey (1996) develops the issue of approaching competencies by emphasizing its desirable characteristic, its predominant transdisciplinary nature, its close relationship between competencies and contents (Negreț, 2012).

The Key Competencies represents "a transferable and multifunctional package of knowledge, skills, and attitudes, that all individuals need for personal fulfillment and development, for social inclusion and professional insertion. They must be developed till the end of compulsory education and must act as a foundation for further learning, as part of lifelong learning" (Ardelean, 2012).

The Key Competencies: are defined by a system of knowledge - skills (abilities) -attitudes; have an implicit transdisciplinary character; represent in a way the educational aims of compulsory education; must be the basis of lifelong learning.

The training and development of competencies represent a desideratum of education and training of human personality. In this respect, in the Romanian Law of Education no. 1/2011, the most important mentions related to the concept of competence, are:

- "The main aim of education is represented by the training of competencies (defined as a multifunctional and transferable set of knowledge, skills/abilities and related skills needed in different situations)" - (art. 4);
- "Lifelong learning is a guaranteed right; in a sense, this represents a key-competence - thus becomes a major educational target" - (art. 13);
- The 8 competence domains (in agreement with the European Reference Framework of Key Competencies for Lifelong Learning) are stipulated in art. 68, line (1): a) Communication competencies in Romanian and mother tongue, in the case of national minorities; b) Communication in foreign languages; c) Basic competencies in Mathematics, Science and Technology; d) Digital competence in using ITC as a tool for learning and knowledge; e) Social and civic competences; f) Entrepreneurship competencies; g) Cultural awareness and expression; h) Transversal elements (learning to learn) (Schola Europaea, 2018, p.5)

The European Commission documents summarize the current state of the general competence issues, in an integrative vision and, in principle, on a negotiated basis. There are currently other approaches to competencies in documents of UNESCO, OECD (Peschar, 1997), PISA, PIRLS, TIMSS, in documents from different countries (Spain, France, Romania, United Kingdom) and different authors (Marsh, 2004; Manolescu, 2010; Rey, 1996). In the pedagogical literature, the competencies are often interpreted as learning outcomes (outputs), as opposed to educational objectives (considered inputs). Those competencies are structured sets of knowledge, skills, and values. It is estimated that there can be no equivalence between the formulations of competencies and different types of expression of objectives. They cannot be reduced or assimilated into each other. Competence is the ability of the student/graduate to solve a certain situation, based on previously acquired skills and knowledge. There is also the view that components of a particular competence (or "sub-competencies") cannot be described, but certain levels of achievement can be approximated. According to some assessments, competencies can be transformed into the "learning situations" (or "learning activities") they are associated with, and not into objectives, regardless of their degree of generality. The discussion becomes more complex when it comes to checking or assessing competence. The papers that refer to the evaluation of competencies (Stoica & Mihail, 2006) show a certain diversity of approaches and solutions, as well as the absence, for the time being, of a unitary model.

Future developments will bring a new reference system. Also, concerning terminology, certain additional clarifications need to be made:

- "*cunoștințe*" - as "knowledge" (in Romanian) - does not only mean factual elements, but this concept has a broader meaning; it is generally adopted in a simplified form to reflect the English term;
- school curricula try to achieve a concretization of the term *knowledge*, where this is subsumed to the concept of "contents", implying the existence of three distinct groups: factual contents; conceptual contents; procedural contents;
- the term "*abilități*" - as "skills" (in Romanian), like an equivalent of the English term "skills" - has better coverage, but, in some disciplines, the concept of "*deprindere*" - as "ability" (in Romanian) seems to be more relevant;
- the concept of *research competencies*, although used, do not have explicit wording in public policy documents that specify the purposes of the educational process.

1.2. The research competence

The research competence represents "an integrative, dynamic property of a person, expressed in the unity of psychological, scientific-pedagogical and practical readiness for diagnostic-analytical and design activities, the implementation of research activities and the introduction of research results in the practical work." (Belyanina, 2018). At the same time, the research competence can be defined as "an integrated set of specific acquisitions, practiced in different situations, by combining knowledge with responsible social experience, as well as the willingness to mobilize, reorganize internal and external resources, to achieve the goal." (Sclifos, 2006).

The literature emphasizes the important role of the development of research competencies, because their manifestation leads to the social and economic progress of the society.

The European Parliament, in its "Report on women's careers in science and universities, and glass ceilings encountered" (2015), shows that science plays a key role in the European economy, in increasing competitiveness and productivity, and needs an increasing number of capable professionals, also in the field of research. The demand for science professionals is expected to increase seriously over the next decades.

The development of research competencies does not only involve just the participation in research activities, but also the manifestation of those skills in various social situations.

Moreover, according to the European Commission, the researchers are professionals engaged in designing or creating new knowledge, products, processes, methods and systems, and in the management of their projects. They carry out professional activities in the fields of basic research, applied research, strategic research, experimental development and knowledge transfer, including innovation and expertise capabilities (European Commission, 2003). But to the list of activities carried out by a researcher are added the activities related to counseling, supervision and education, knowledge management and intellectual property rights, valorization of the research results or scientific journalism (European Commission, 2005).

Other studies refer to the development of the students' research competencies preparing for teaching careers with impact on sustainable development (Albareda-Tiana et al., 2018). The authors draw attention to the fact that the society sustainable development goals can be achieved by training young people, equipped with strong research skills, especially in the case of those who are preparing for the teaching career, considering the teachers as strong agents of changes in young people's lives, and promoting significant changes in sustainable behavior.

Mendoza (2018) conducted a study that aimed to describe the research competencies of university professors at the Universidad Iberoamericana del Ecuador (UNIBE) through emotional intelligence. The results of the study show that teachers, in addition to research competencies, must have a certain degree of development of emotional intelligence, with the view to introduce and exploit them into practice. Thus, research competencies represent an attitudinal alternative that involves understanding and transferring knowledge, as well as emotional values aimed at significantly stimulating of the professors' research potential. It shows difficulties in acquiring research competencies, referring to the set of knowledge, skills, behaviors and values that teachers should use to face their daily academic life.

A recently published study (Anisimova et al., 2020) emphasizes the importance of training research competencies, especially in the STEM fields. The study draws attention to the fact that in nowadays society (in full digital economy), the professions associated with high technologies are demanded on a large scale: programmers, systems technicians, IT specialists, biotechnologists, project leaders etc. Thus, the graduates are required not only to have good knowledge of school topics, but also interdisciplinary knowledge, trained through the scholar cycles. In this respect, the research competence becomes essential. The study shows that it is not only necessary

to train teachers to implement new educational programs for developing students' research skills, but also to train future teachers to implement educational activities aimed at training design and research competencies.

In the Romanian educational system, the research competence - as we considered in this presentation, has to be formed and developed from the first years of compulsory education. Thus, some components are found at the level of basic skills in Mathematics, Science and Technology. They aim at the level of: knowledge, skills/abilities and attitudes. Those mentioned are the closest - in meaning and results - to research skills.

1.3. From the research competencies to well-being

The concept of well-being is defined by the Oxford English Dictionary as "the state of being comfortable, healthy, or happy."

"Well-being can be understood like how people feel and how they function, both on a personal and a social level, and also how they evaluate their lives as a whole." (Michaelson et al., 2012).

Ryff and Singer (1996) introduced the concept of "psychological well-being", while identifying 6 categories at the level of the concept: self-acceptance, positive relationships with others, autonomy, environmental management, purpose in life, and personal development.

Different aspects of well-being, as were identified in the literature, are:

1. Physical well-being - physical health, safety, comfort, love, and beauty;
2. Social well-being - self-esteem, success, solidarity, love for others, and kindness;
3. Psychological well-being - autonomy, freedom, knowledge, self-love, and truth;
4. Life satisfaction - support, finding one's place in the universe, contribution to a better world;
5. Economic well-being - efficiency, effectiveness, benefits, advantages, profit;
6. Development and activity - self-management, progress, performance;
7. Emotional well-being - satisfaction, joy, fulfillment, success, appreciation, valorization;
8. Domain-specific satisfaction - salary, standards of living, professional promotion;
9. Engaging activities and work - motivation, appreciation, valorization, encouragement.

Associations between research competencies and well-being have been tangentially underlined in the literature.

Plomp et. al. (2016) show that employees who have proactive attitudes and behaviors can amplify their well-being status at work, by redesigning their professional responsibilities and developing career-related skills. We believe that, for the manifestation of the research competencies, it is necessary to develop a "feeling good status", associated with the desire to learn new things, creativity, imagination and curiosity. The success of some research projects / activities amplifies the well-being condition.

In a study referring to the role of the career skills in the adaptation and well-being of the university graduates, Akkermans et al. (2018) show that students, in addition to acquiring professional skills, must have a set of skills that help them meet challenges, stimulate their well-being and encourage them to get involved in achieving performance. Researchers call them "career resources" and believe that they contribute to both well-being and academic performance.

In addition, as a modern interpretation of research, *Responsible Research and Innovation* seems to become an essential factor for modeling the well-being status, especially during the activities dedicated to learning science, in both formal and non-formal activities (Gorghiu et al., 2017).

1.4. The research gap

Considering such topic actual and important, we have set out to emphasize on the correlation between *students' perceptions concerning the need to develop research competencies* and *the extent to which they effectively acquire those skills during their academic studies*. In this sense, it was proposed to identify the respondents' perceptions concerning the structure of the research competencies, to offer a view on the level of awareness related to the needs to gain the research competencies, to identify the situations in which the respondents used those competencies, and the barriers encountered during the research activity.

An important aspect targeted also to the identification of respondents' perceptions regarding the importance of research in their future professional activity, which could implicitly determine the interest in establishing the well-being status at the individual and organizational levels.

1.5. Research questions/Aims of the research

The hypothesis we start from in our research approach is oriented on the possible correlation between the students' well-being and the manifestation of research skills, as attested by academic success (good examination results, satisfactory homework, appreciated students' academic products, satisfactory social relations in the academic environment, correct evaluation of opportunities, job satisfaction etc.)

The goals of the research are the following:

- on the one hand, we aim to capture the students' opinions related to well-being, the extent to which they have research skills, and - at the same time - the extent to which they are aware of the need to develop such skills;
- on the other hand, considering that as general, the research activity can be a triggering factor of well-being, we aim to highlight the extent to which the two concepts are correlated, in the perception of the interviewed students.

2. Research methods

2.1. Participants

The research sample was represented by 310 students (license and master levels) from 3 Romanian universities: Technical University of Civil Engineering of Bucharest (90), Valahia University of Targoviste (110), and Academy of Economic Sciences, Bucharest (110). The sample meets the criteria of representativeness, in relation to the fundamental scientific fields for university studies. A dedicated questionnaire was completed by students, on a voluntary basis, all of them being informed in advance about: confidentiality of the whole approach, research objectives, ways for applying the questionnaire, ways for processing the collected data, possibility of refusing to complete the questionnaire etc.

2.2. Materials and instruments

The proposed research method relied on a dedicated questionnaire survey - in this sense, the questionnaire was developed with 8 items (7 with closed, predetermined answers and 1 with an open answer) meant to retain the opinions of the questioned students regarding their research skills and how they can transfer their well-being in their professional development.

2.3. Procedure

The questionnaires were applied during the academic year 2018-2019, on paper. Furthermore, those were processed primarily by statistical-mathematical methods, and subsequently, the results were subjected to a qualitative analysis.

3. Results

3.1. Results

The first item of the questionnaire required an open answer, regarding what well-being represents, in the opinion of the respondents.

The main ideas resulting from students' answers are:

- Well-being represents "a kind of feeling" that includes physical, mental, and social health
- Well-being means health - on the one hand -, but in addition to health, it includes life experiences (satisfaction, joy, happiness), work-related experiences (membership, attachment) and specific dimensions (satisfaction at work, salary) - on the other hand;
- Well-being - related to work - is linked to the creation of an environment that promotes a state of contentment that allows the employees to develop and reach their highest potential for the benefit of themselves and the organization in which they work. This fact makes the organization productive and more responsible to its employees;
- Strong related to well-being, the interference between work and private life is a topical issue of work and organizational psychology.

To the next question "***In what measure, do you consider the research competencies as a priority in your training, for ensuring a well-being status?***", the students' responses are distributed proportionally, as illustrated in figure 1. The high percentages recorded for the answers "to a great extent" (43%) and "to a moderate extent" (39%) certify that the respondents give substantial meaning to their research skills and correlate them both with the training activities and with well-being. The answers of the surveyed students must be correlated with the academic activities they must carry out. In their activities, the research competence must be actively manifested, thus contributing to their academic success, the achievement of school performances, and professional certification.

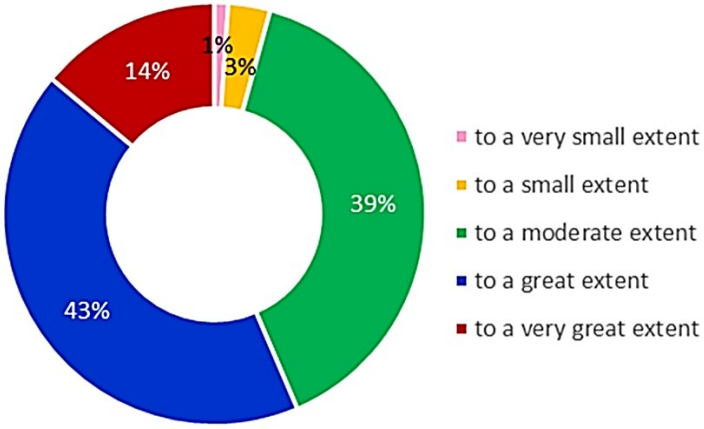


Figure 1. The measure in which respondents appreciate that research skills represent a priority in professional training and well-being.

Referring to the ***elements of the research competence***, which the respondents had to rank on a scale from 1 to 10 - in which 1 is the most important and 10 the least important, they placed on top the research planning capacity, followed by the identification of research methods and tools and the organization of research. On the last 3 positions, the respondents placed: application of research tools, interpretation of data, and production of statistical reports. In our opinion, the choices made by the surveyed students can be categorized as realistic and rational from the perspective of the competency profile of a responsible researcher.

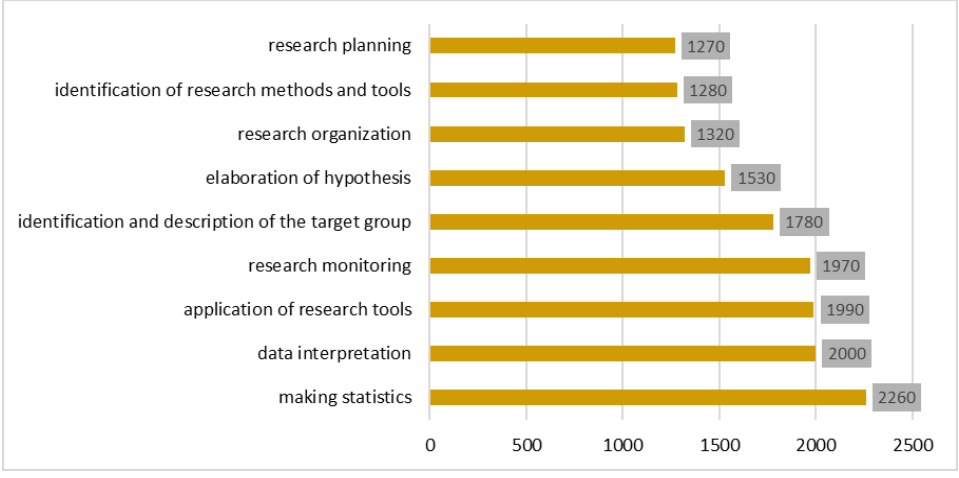


Figure 2. Ranking the component elements of research competence

When asked ***"When was it necessary to use your research skills to ensure well-being?"***, the students associated the research/academic tasks with the well-being obtained by fulfilling those tasks. Thus, most of the recorded answers were for elaborating the required papers in various disciplines, at a tie with elaborating the required projects in different disciplines and with producing bachelor/dissertation works. A significantly smaller number of choices were focused on responses such as carrying out various practical / laboratory work, and 14 respondents stated that it was not necessary to use their research skills until then. We appreciate that, in the context of this question, the answers focused mainly on the psychological aspects of well-being as well as on those related to engaging in stimulating and motivating activities.

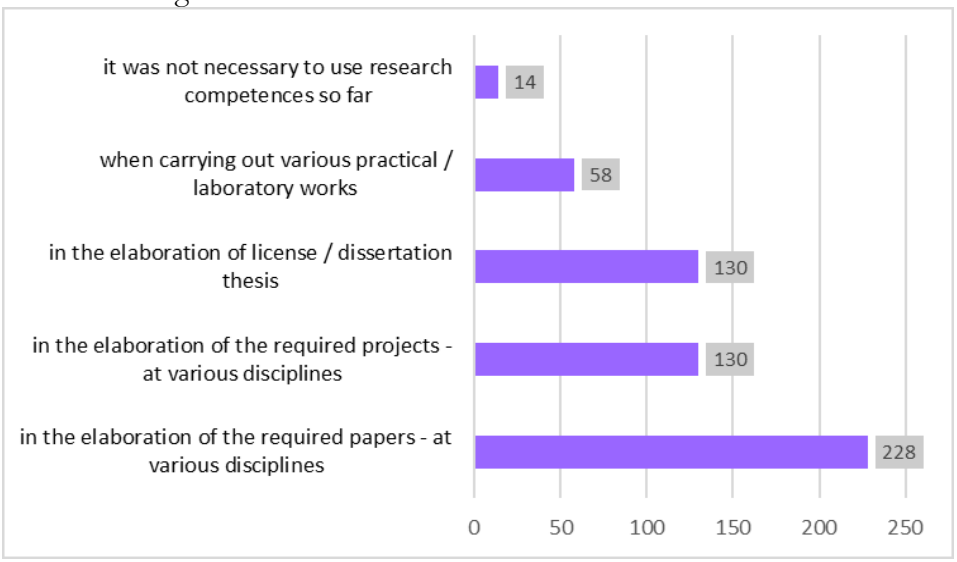


Figure 3. Situations in which respondents tapped into their research skills for achieving the state of well-being

Failure to complete academic tasks or difficulties encountered in research are associated by responding students with feelings of dissatisfaction, helplessness, stress, and anxiety. Referring to "***What difficulties have you encountered in the research activity you have carried out so far?***", number one in our statistics on the answers provided by the surveyed students are the difficulties related to planning the research stages, followed by the lack/limitation of access to research resources (articles, databases, laboratories, etc.), correlation and interpretation of data obtained, formulation of hypotheses and elaboration of the justification

report. In our opinion, those results can be attributed to the limited experience that the respondents gained in the context of a small number of research activities in which they had the opportunity to participate, as students or master students. However, we cannot fail to highlight the fact that, through the provided answers, the respondents show a rational and responsible attitude concerning their own research skills they should have formed/developed during their undergraduate and master degree studies.

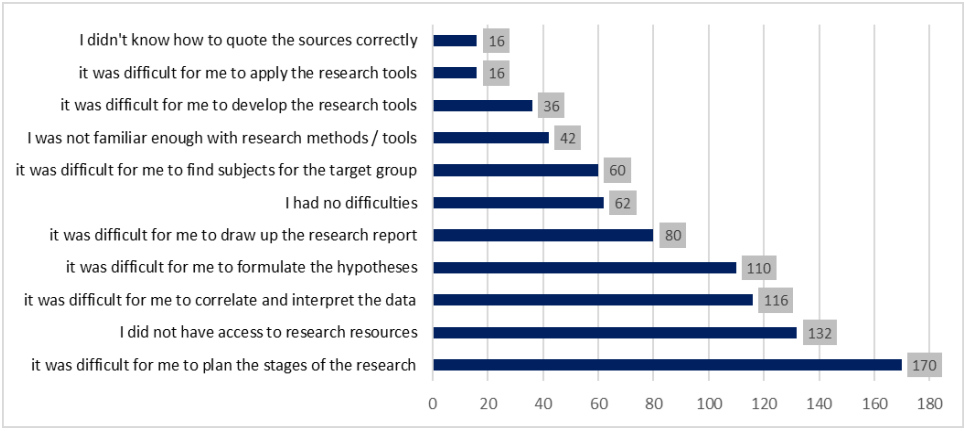


Figure 4. Ranking the difficulties encountered by respondents in the research carried out so far

In correlation with the answers recorded in the previous item, the respondents' opinions on ***what level are research competencies easier to be developed at***, are illustrated in figure 5. Thus, it is observed that most of the surveyed students appreciate the competencies are best formed/developed at the level of undergraduate studies (51%), while 23% believe those competencies to be developed during the continuing vocational training, 14% during doctoral studies and the remaining 12% during master studies. In our opinion, the provided answers can be well correlated with students' needs in relation to their own research skills and the difficulties they listed in the previous item.

From the analysis of the answers, another observation related to the surveyed students is that despite the teachers' request to manifest their research skills in academic activities, they are very unaware of its importance.

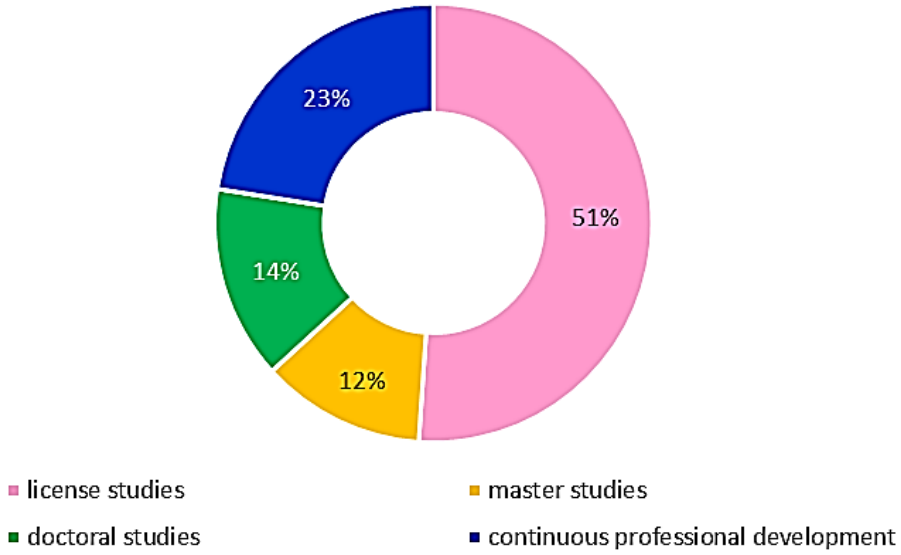


Figure 5. Respondents' opinions concerning the level of studies in which research competencies are best formed / developed

4. Discussions

As scientific research represents an area of strategic importance for social progress, it gathers - at the same time - a complex of fields. In this respect, it means an active and systematic procedure for discovering, interpreting, revising facts, events, behaviors or theories, or performing practical applications, with the help of such facts, laws, or theories, and structured, with a certain rigorous and systematic purpose, of data collection, interpretation, analysis, and publication.

In the field of research, the role of human resources is esential. OECD considers that this field requires highly qualified human resources which is an essential factor in the creation and dissemination of scientific and technological knowledge. They are an element of connection between technological progress and economic growth, between the development of society and environmental protection. (OECD, 1995).

The Canberra Handbook (OECD, 1995) shows that one of the factors on which human resources involved in science and technology depend is determined by the attitude of students/graduates towards the research and development system, determined by a series of factors such as salary level, laboratory equipment, how research-development units are lead

(sometimes defectively and discretionarily), etc. The development of human resources in the direction of developing research skills is particularly important. The OECD also points out that the supply of trained and researched human resources is essential for innovation.

However, a fundamental question remains as to when is best to begin the training of future researchers.

Training the capacities for experimentation, observation, cultivation of creativity, curiosity, formation of research skills, etc. falls in school responsibility. For example, children are allowed to experiment in the natural sciences, to compile projects, papers, portfolios, and other works that stimulate their abilities to think, generalize, abstract, experiment, search, and systematize information. This is the basis of future research professions. Also, obtaining results through one's own work represents a source of satisfaction, of well-being, and implicitly, of increasing motivation and involvement.

Some authors talk about certain "critical transitions" experienced by future researchers in the process of professional development, moments that can "propel" a person in the field of scientific research or divert their career path to other fields. Some of these events are visible, others are hidden. For example, gender roles in children are important for accessing a future career in research and in certain research fields (boys are mainly oriented towards science and engineering). Among the visible "critical transitions" can be listed: the scientific setup at the faculty level, the employment and exercise of the research profession (Etzkowitz et al., 2000).

At the university level, training for a future research career is more explicit. We see in the university curricula disciplines that address research issues (scientific research methodology), student scientific communication sessions, scientific seminars, guidance, and tutoring, etc. All of them aim to enable students with research skills to be capitalized in evaluation/graduation papers or the future career of researchers/teachers. Unfortunately, not all faculties have such disciplines in the curricula of the undergraduate cycles. Guiding practices, and participation in scientific communication sessions, are not unitary.

In some cases, disciplines such as research methodology are found in the curricula of the master's programs or even doctoral schools, which we appreciate is very late to develop in students some real research skills and to orient them towards working as researchers professionally. We consider this a major impediment in the development of future researchers. Lack of minimal training in research methodology starting with the undergraduate programs, insufficient guidance from mentor researchers, lack of

involvement, or poor involvement of students in research projects, are factors that contribute to the poor involvement of students/graduates in research.

We consider that the development of human resources in research must envision an integrated approach, both from the perspective of initial and continuous training, and universities must adopt measures to promote this aspect.

5. Conclusions

A correlation between students' research skills and well-being is difficult to be found. However, students - in their great majority - primarily correlate well-being with health, but also, take into account life experiences, work-related experiences and other specific dimensions, as areas where research is present.

Research is seen - by students - as an important channel for ensuring a well-being status, its main components being identified as research planning, elaboration of hypothesis, and identification of best research methods and tools.

Students develop research competencies during their studies and exploit such competencies especially in the process of elaboration of the required papers and projects, and in the process of elaboration of license/dissertation thesis.

Students found a series of difficulties like planning the stages of the research, accessing the research resources, formulating the research hypotheses, or performing correlations and interpreting the results.

The collected data, as well as the study of literature, confirm the hypothesis that there is a correlation between the well-being felt by students and demonstrating research skills manifested as academic success. Academic failure, manifested in large part due to lack of research skills, produces stress, demotivation, anxiety.

We also consider that to acquire research skills, it is necessary to use active - participatory strategies in the teaching-learning - assessment process, from the early grades. Children should be allowed to show curiosity, but be helped to develop skills of observation, assessment, knowledge, and mastery of research tools. In the academic environment, students should only capitalize on these skills and develop them.

An important component is the motivational one. Strengthening the motivation for research, the satisfaction felt with obtaining academic success leads to experiencing well-being, as the basis for developing research skills.

We consider the research conducted in this study only a first step in the analyzing process concerning the correlations between research competencies, the need for their formation, and the well-being status, which leaves room for future studies.

References

Akkermans, J., Paradniké, K., Van der Heijden, B. I. J. M., & De Vos, A. (2018). The Best of Both Worlds: The Role of Career Adaptability and Career Competencies in Students' Well-Being and Performance. *Frontiers in Psychology*, *9*, 1678. https://doi.org/10.3389/fpsyg.2018.01678

Albareda-Tiana, S., Vidal-Raméntol, S., Pujol-Valls, M., & Fernández-Morilla, M. (2018). Holistic Approaches to Develop Sustainability and Research Competencies in Pre-Service Teacher Training. *Sustainability*, *10*(10):3698. http://doi.org/10.3390/su10103698

Anisimova, T., Sabirova, F. & Shatunova, O. (2020). Formation of Design and Research Competencies in Future Teachers in the Framework of STEAM Education. *International Journal of Emerging Technologies in Learning (iJET), 15*(2), 204-217. https://www.learntechlib.org/p/217163/

Ardelean, A. (2012). *Didactica formării competențelor* [Didactics of skills training]. "Vasile Goldiş" University Press

Belyanina, L. A. (2018). Formation of an Effective Multi-Functional Model of the Research Competence of Students. In V. Mkrttchian & L. Belyanina (Eds.), *Handbook of Research on Students' Research Competence in Modern Educational Contexts* (pp. 17-39). IGI Global. http://doi.org/10.4018/978-1-5225-3485-3.ch002

Etzkowitz, H., Kemelgor, C., Uzzi, B, Neuschatz, M., Seymour, E., Mulkey, L., & Alonzo, J. (2000). *Athena Unbound: The Advancement of Women in Science and Technology*. Cambridge University Press.

European Commission. (2003). *Communication from the Commission to the Council and the European Parliament - Researchers in the European Research Area: one profession, multiple careers*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52003DC0436

European Commission. (2005). *Commission Recommendation on the European Charter for Researchers and on a Code of Conduct for the Recruitment of Researchers*. Retrieved from https://eur-lex.europa.eu/eli/reco/2005/251/oj

European Parliament. Committee on Women's Rights and Gender Equality. (2015). *Report on women's careers in science and universities, and glass ceilings encountered*. Retrieved from https://www.europarl.europa.eu/doceo/document/A-8-2015-0235_EN.html

Gorghiu, L. M., Bîzoi, M., Petrescu, A. M. A., & Gorghiu, G. (2017). Bringing RRI in Science Lessons - Challenges and Benefits for Students in Learning Process. *LUMEN Proceedings*, *1*(1), 308-317. https://doi.org/10.18662/lumproc.rsacvp2017.28

Manolescu, M. (2010). Pedagogia competenţelor - o viziune integratoare asupra educaţiei [Competence pedagogy - an integrative vision on education]. *Revista de Pedagogie*, *58*(3), 53-65.

Marsh, C. I. (2004). *Key concepts for understanding Curriculum*. Rutledge Falmer.

Mendoza, D. (2018). Research Competencies of Higher-Education Teaching Staff Based on Emotional Intelligence Mediterranean Journal of Social Sciences, 9(5), 41-52. http://dx.doi.org/10.2139/ssrn.3639447

National Education Law. (1/2011). Retrieved from https://www.edu.ro/sites/default/files/legea-educatiei_actualizata%20august%202018.pdf

Negreț, D. (2012). *Proiectarea curriculum-ului centrat pe competențe* [Curriculum design focused on competencies.]. Editura Didactică şi Pedagogică.

Michaelson, J., Mahony, S., & Schifferes, J. (2012, July 29). (2012). *Measuring Well-being: A guide for practitioners*. New Economics Foundation. https://neweconomics.org/uploads/files/measuring-wellbeing.pdf

OECD. (1995). *La mesure des activités scientifiques et technologiques - Manuel sur la mesure des ressurces humaines consacrées a la science et la technologie, Manuel de Canberra* [Measuring Scientific and Technological Activities - Handbook on Measuring Human Resources for Science and Technology, Canberra Handbook]. Retrieved from https://ec.europa.eu/eurostat/ramon/statmanuals/files/Canberra_Manual_1992_FR.pdf

Peschar, J. L. (1997). *Prepared for life? How to measure cross-curricular competencies/Prets pour l' avenir? Comment mesurer les competences transdisciplinaires?* (Bilingual edition). OECD/ODCE.

Perrenoud, P. (1998). *Construire des compétences dès l'école* [Build skills from school]. ESF.

Piaget, J. (1998). *Psihologia inteligenței* [The Psychology of Intelligence] (D. Rautu, trans.). Editura Ştiinţifică. Original worl published in 1947.

Plomp, J., Tims, M., Akkermans, J., Khapova, S.N., Jansen, P.G.W., & Bakker, A.B. (2016), Career competencies and job crafting: How proactive employees influence their well-being. *Career Development International*, *21*(6), 587-602. http://doi.org/10.1108/CDI-08-2016-0145

Rey, B. (1996). *Les Compétences transversales en question* [The transversal skills in question]. ESF éditeur.

Ryff, C. D., & Singer, B. (1996). Psychological Weil-Being: Meaning, Measurement, and Implications for Psychotherapy Research. *Psychotherapy and Psychosomatics*, *65*(1), 14–23. http://doi.org/10.1159/000289026

Schola Europaea. (2018). *Key Competences for Lifelong Learning in the European Schools*. Retrieved from https://www.eursc.eu/BasicTexts/2018-09-D-69-en-1.pdf

Sclifos, L. (2006). Competenţa de cercetare-factor de continuitate în educaţie [Research competence-continuity factor in education]. *DidacticaPro*, *5-6*, 39-41. https://ibn.idsi.md/sites/default/files/imag_file/Competenta%20de%20cercetare_factor%20de%20continuitate%20in%20educatie_0.pdf

Stoica, A., & Mihail, R. (2006). *Evaluarea educațională. Inovații și perspective* [Educational evaluation. Innovations and perspectives]. Humanitas