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20 years celebrated by the Journal of Educational Sciences – insights, academic achievements and future prospects

Simona Sava*, Anca Luștrea*

Abstract

In 2019, the Journal of the Educational Studies (JES) celebrates its 20th anniversary, which is not automatically self-explanatory, not for a Romanian scientific journal in this discipline, and not even for any other prestigious scientific journal. Our journal has faced three main challenges in this period: first, the question of language and internationalization, closely linked to the delivery mode, secondly, the changes of the institutional context, and finally, the development of the discipline. In what follows, we will outline the development of the JES according to the challenges mentioned above, give an overview of the topics and structure adopted by the JES for the last 20 years and highlight the contributions to this special edition on the topic of generational and scientific changes in educational research in this period.

Internationalization

The JES was founded as a national journal, addressing scholars and students in the field of educational sciences, but the need for internationalization increased rapidly. During these 20 years, the majority of those over 10 Romanian educational scientific journals have decided to publish almost exclusively in English and less in Romanian. Such a choice is due to the increased need for internationalization and better visibility, but also it has to do with the constraints of being accepted in the international databases. In addition, the scientific criteria set up by the national bodies of research for the ranking of the journals have also fueled the efforts of the editors to follow this trend. However, such development is rather unfortunate especially for those students, practitioners, and academics who cannot speak English and, in this way they are unlikely to be in touch with the latest research. But, on the other hand, these scholarly journals are forums for popularizing the Romanian expertise and research. Confronted with rather limited financial resources and striving to overcome the impediments of a medium-income country, Romanian researchers have often difficulty in accessing high-ranked journals (Fejes et al., 2019; Hennessy et al., 2019). In addition to this advantage of publishing the

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journals in English, there is also the benefit of having a more attractive journal for the international community of scholars.

The JES has managed to follow this trend and, at the same time, to remain one of the most well - reputed journals published in Romania. In its 20 years of existence, the journal has developed in three main stages: first, professor Ion Dumitru, the founding editor in chief, stepped back from this position in 2005; one year later, in 2006, prof. Simona Sava took over the chief editorial position, which she has held since then. This change has also meant a new editorial policy for the journal, with a more diverse editorial board and articles published not only in Romanian and not only by Romanian authors, so as to address a wider audience and embrace new perspectives. Up until 2005, the journal was almost exclusively a university journal, with authors from the WUT (Dumitru, Crasovan 2007). Since 2006, the editorial board of JES has made intensive efforts towards internationalization, increased visibility, designing its own website (www.resjournal.uvt.ro). The number of articles published by foreign authors has increased constantly, and since 2008, the journal has published entirely in international languages (English, French, and German), But, in 2009, it decided to publish exclusively in English, when it was accepted in the first international database – Ebsco. In the last ten years, all the issues have enjoyed the contributions of many authors from abroad, and even foreign guest editors.

Besides the opening of the journal to international topics and authors, the editors have invited reputed scholars from abroad to guide the development of the journal and to support it with their experience and expertise. Thus, the scientific board reunites now experts from Germany, Spain, Italy, Denmark, the UK, Greece, Cyprus, Serbia, Latvia, India, Portugal, Hungary, etc. The board has yearly meetings, during which they discuss the achievements of the journal, suggest new topics for the future and recommend new international contributors.

International visibility is not only achieved by publishing in an international language, or by having a diverse editorial board or by choosing new topics, but also by the delivery mode. In the history of the journal, the year 2016 was very successful, when a new editorial board was nominated, a new webpage was designed (<https://rse.uvt.ro>), and the journal became an entirely open access journal. The editorial board channeled their efforts to meet the editing requirements of the international databases, which made possible the inclusion of the journal in other three prestigious databases (ERIH Plus, CEEOL, CEU). Thus, the JES has managed to turn from a local journal to a nationally and later internationally recognized journal, with a wide European recognition. So far it has managed to be one of the prominent journals of educational sciences in the South-Eastern Europe, acknowledged as such by a number of national scientific bodies in this part of Europe (i.e. the ones from Serbia, Hungary, Latvia, Poland and others).

Comparing the JES with other European journals of educational research, regional ones (i.e. the Scandinavian Journal of Educational Research –SJER - see Lund Martinsen 2018), national ones (i.e. British Journal of Educational

Technology - BJET – see Hennessy et al 2019), or even European ones (i.e. the European Journal of Research on the Education and Learning of Adults - RELA – see Fejes et al 2019), it can be noted that all these journals became international over the years, despite preserving their regional or national titles. In the same vein, it is also shown that their anniversary years are milestones in their development, with new plans for the future, based on their recent accomplishments. If the impressive number of years celebrated, 60 for SJER and 50 for BJET, is proof of their advanced quality, visibility and development, the only 10 years of celebration for RELA, with comparatively equal scientific achievements, argue for the need for more resources to be invested in the development of a scientific journal, whether financial or related to the expertise of the authors. For Romanian based journals, mainly university based, it is quite difficult to rely on such resources that are vital for each journal. Therefore, for a stronger impact and a more accelerated scientific development, joining forces and merging might be an option to be further considered.

Simona Sava-

Institutional background

Twenty years ago, the founding of the JES coincided with the establishment of two new specializations of the Department of Educational Sciences (DES) of the West University of Timisoara (WUT), the Special Education and the Pedagogy of Preschool and Primary Education (early childhood education). These two specializations merged with the existing specialization of Pedagogy (set up in 1997) in 2002 and 2005 respectively, setting up together the DES, within the Faculty of Sociology and Psychology (FSP). The original idea of the Romanian Institute of Adult Education (IREA) was launched in 1999, and its official launching was in 2000. The IREA was set up as an independent research unit, belonging to the DES, and it has also been a co-editing unit of the JES in all these years.

It should be noted that the JES has a history almost as long as the institutional structures editing it, which emphasizes the the necessity of this publication (Dumitru & Crasovan, 2007) for a better institutional identity, for enhanced scientific expertise and for the recognition of educational sciences as a well-established academic field of study, as Prof. Dorel Ungureanu, the first director of the Department of Pedagogy and later of Educational Sciences (also serving as Scientific supervisor for the JES till 2007) has proposed at that time.

The FSP celebrates its 25th anniversary in 2019. All the four departments reunited under the FSP (The Departments of Psychology, of Sociology and of Social Work, in addition to the DES) were set up after 1990, as until 1989 these specializations had been closed down by the communist regime for almost 17 years. The WUT celebrates 75 years of existence in 2019. If, at the beginning, the WUT was set up as a pedagogical institute for teacher training in different specializations (mathematics, languages, physics and so on), later on all these specializations became distinct faculties. Nowadays, the WUT is the largest university in the Western part of Romania, reuniting 11 faculties, and a distinct

department of teacher training, and more than 15,000 students. It is the fourth largest national university of the country, a member of the inter-university Consortium "Universitaria", together with the other three main universities in Romania. All these four universities have departments of educational sciences, each of them with their own research journal.

If the other three the DES, set up in 1990, initially had journals as *Annals* of the university, with a dedicated series of educational sciences, the DES -WUT clearly aimed from the beginning to launch the JES with a wider audience than just the institutional one. The other three universities later founded their scientific journals in the field of educational sciences with different names. Thus, nowadays, the JES is one of the roughly 10 journals of educational sciences, edited in Romania by different universities and educational research institutes.

The recently set up Romanian Association for Educational Research (ARCE), as a member of The European Educational Research Association (EERA), can be a common arena for the existing journals which can merge into a stronger one and be published together, as there is already the successful model of other national educational research associations.

Pedagogy as Discipline

The JES is concerned with the wide topics of educational sciences, in all their coverage. As it specified in the editorial of its launching number (Dumitru & Crasovan 2007), the journal was set up with the purpose of providing a forum for enhanced scientific visibility and development for educational sciences as an academic field of study and research. As it will be proven later in the methodological part of this article, the JES has managed to fulfill its scope, addressing all topics in educational sciences and in its specialized sub-disciplines, slightly favoring topics related to adult education, and in time it has become a general research hub stimulating communication among researchers

The predominance of topics in adult education is striking in all these years (Dumitru & Crasovan 2007), this being due to the co-editing team from IREA and to the academic expertise of the educational school of research and academic studies from the WUT, which can be illustrated by the achievements obtained over the years.

20 years of evolution for a disciplinary field can be a long and a short period at the same time. If we look at the major and significant developments taking place in the JES during this time, we might say that it is a long period, which has allowed such changes. It is a period marking a generational change. Therefore, the special topic for this anniversary number has a particular focus: the generational change. This is to say that the members of the scientific board were invited to reflect on the implications of this change in their own contributions, as some of them were doctoral students supervised by the first professors who accepted to be members of the scientific board of the JES in its early beginnings, and currently they are doctoral coordinators themselves, mentoring new generations of educational researchers. Such generational collaboration and

mutual exchanges are very rewarding, as Irina Maslow (2019) and Emil Păun and Simona Sava (2019) highlight in their contributions. Reflecting back on the developments in the 20 years of publication, Ramon Flecha and his colleagues (Flecha, Gutierrez & Ruiz-Eugenio, 2019) highlight the move from "edu-myths" to research-based argumentations, empirically proved. This is a general trend in the field of educational sciences, both at the national and the European levels, perfectly illustrated in the evolution of the JES. The articles published in the first years were based on "edu-myths" with a very general application (Dumitru & Crasovan 2007), whereas for the past ten years we have published a steadily increased number of articles based on empiric studies.

But the field of educational studies itself has dramatically changed in this short period of time, and this change has strengthened the entire evolution of educational sciences regarded as a vital discipline of research. In this sense, a relevant example would be the pedagogy of communication (Soitu, 2019), seen as a field of study on its own right which has been dramatically influenced by the new forms and means of communication that have flourished in these past 20 years. New technologies of information and communication have not only impacted our entire world, but they have changed the world of education in an innovative manner.

The complexity of the educational field is so intricate that only if we look at the contribution of Paolo Federighi (2019) describing the research landscape in adult education, we can have a glimpse of the intensive and extensive efforts educational researchers put in structuring, explaining, and advancing the knowledge in educational sciences. Therefore, large fora of debate, large networks and teams of researchers, large amounts of resources are needed to continuously deepen and expand the field of educational research and science, for conceptualizing it, for an improved quality of education, whether nationally or internationally. Such reflections are also mirrored in the celebration speech for awarding the title of Doctor Honoris Causa to Professor Alis Oancea (University of Oxford), also included in this anniversary number. Over the years, the JES has published all the celebration speeches of the distinguished professors of education who became doctor honoris causa of the WUT, whose speeches reflect their extensive expertise and deep reflections in educational sciences. Their outstanding academic work and research have produced great progress in the field of education.

Research in education is dynamic and continuously expanding, reflecting the recent challenges of the societal transformations for education. By its nature, the work conducted in educational research has to look forward to education in the years 2030, 2050 and beyond, to find the best ways for preparing the young generations for a sustainable future and better education. At the same time, educational experts and researchers are expected to look back and capitalize on the lessons education has taught us so far, on the developments of the educational systems and practices, validated over the years, and finally find there evidence for an improved quality of lifelong and life-wide education.

In conclusion, over the years, the JES presented the valuable contributions of the educational specialists to structuring and advancing the debate and knowledge in the educational field. The focus has been mainly on the Romanian contributions, so as to reflect the developments of the Romanian educational system and educational research. At the same time, the JES has provided open space for valuable contributions to educational research from Europe and beyond, as it can be seen in the next chapters.

Two decade outline

Twenty years of the journal's history are equivalent to 40 issues, two per year being published. They are collected in 20 volumes.

The purpose of this study is to analyze the profile of the Journal of Educational Sciences, its content and main developments that have taken place in its 20 years of existence, between 1999 and 2019. In addition, future directions and new lines of research, new research objectives and main themes of interest are advanced in an evidence-based manner.

Four research questions have been developed:

1. Which are the authors' profile?
2. What are the most frequently approached themes?
3. Which research design is prevalent?
4. What are the most frequently used keywords?

To respond to the research questions, a content analysis has been conducted. We aim to analyze, compare and categorize the authors' main features, significant keywords, research themes and research designs.

For our data collection, inclusion criteria have been chosen for all the articles published over the 20-year period since the journal's first publication, 1999-2019. A total number of 494 articles have been published during this period, including event presentations and book reviews. All of them are content analyzed in this study.

The analysis criteria have been designed following a similar content analysis study conducted by another academic journal, published by Cherrstorm, Robbins and Bixby (2016). The data has been collected with reference to:

- Each of the issue, in terms of the themes developed by issue (general or special), numbers of articles per issue
- Authors, in terms of gender, geographic region and institutional affiliation
- Articles, in terms of the thematic area covered and type of research design
- Keywords and main themes of research

Both print copies (for the 2000-2005 numbers) and electronic copies (for the 2006-2018 issues) are used in the content analysis.

Main findings and results

The results will be structured in relation to the research questions formulated above. The presented data will refer to the journal issues surveyed, the authorship, the thematic area of the articles, types of research design, keywords and major themes.

Journal Issues

Between 1999 and 2018, a total of 39 issues were published, containing a number of 494 articles, including event presentations and bookreviews. The JES is identified by volume, one per year (I-XIX) and issue, 2 per year (1-38). In four years (2000, 2002, 2003 and 2005), the journal appeared just once, both issues being published together, in the same volume. Ever since its first publication, the JES has continued to publish with sustained continuity, and since 2006 all issues have been published regularly, and on time.

General and special issues have been published. Up until 2008, no editorial procedure for planning a general or special issue was in place. From 2000 to 2007, 9 general issues and 3 special issues were published, with no well-established order. Since 2008 a procedure for general and special issues has been implemented: the first issue of each year is a general one and the second, a special issue. Out of the total of 39 issues, 14 (35.89%) are special issues and 25 (64.10%), general issues

The themes developed by the special issues are the following: adult education (3 times), competency validation (2 times), special education (2 times), educational psychology (2 times), and once, higher education, community development, basic education, special didactics, education and culture.

Table 1

JES's issues from 2000 to 2018

Year	Volume	Issue 1	Issue 2	Nr of articles
1999		Released issue		
2000	I	1-2	General number	27
2001	II	3 Adult education	4 General number	51
2002	III	5-6 General number		27
2003	IV	7-8 General number		27
2004	V	9 Educational psychology	10 General number	46
2005	VI	11-12 Higher education		10
2006	VII	13 General number	14 General number	31
2007	VIII	15 General number	16 General number	24
2008	IX	17 General number	18 Adult education	19
2009	X	19 General number	20 Adult education	32
2010	XI	21 General number	22 Community development	33
2011	XII	23 General number	24 Validation of competencies	23
2012	XIII	25 General number	26 Validation of competencies	24
2013	XIV	27 General number	28 Educational psychology	23
2014	XV	29 General number	30 Basic education	21
2015	XVI	31 General number	32 Special didactics	19
2016	XVII	33 General number	34 Education and culture	21
2017	XVIII	35 General number	36 Special education	20
2018	XIX	37 General number	38 Special education	16

The number of articles per volume varies between a minimum of 10 and a maximum of 46 articles. A total of 494 articles are published ($M=26$, $SD=9.72$). In the last 5 years, 97 articles have been published ($M=19.4$, $SD=2.04$). The standard deviation per all volumes ($SD=9.72$) indicates a larger dispersion in the number of articles per volume than in the last 5 years ($SD=2.04$). As can be seen, a more standardized number of articles per volume occurred naturally. In the last 5 years, a mean of 10 articles per issue have been published.

Authorship

Table 2 presents the distribution of the authors by gender, geographic region, academic degree and institutional affiliation.

Each author is counted only once for a published article, even if they have more than just one publication over the years. Gender distribution reflects an unequal proportion: from a total of 635 authors, 430 (67.72%) were females and only 205 (32.28%) were males. There is no statistics regarding the overall gender distribution of academics in the educational sciences field, but the obtained proportion may reflect the general gender distribution in this field, no gender discrimination being applied.

The geographic region is distributed in two categories: the Romanian contributors and the foreign contributors. Most of the authors are Romanian (477, 75.12%) and only 158 (24.88%) are foreigners. Germany is the country with the most foreign authors who have contributed to our journal, followed by Italy and Spain. Other countries that are widely represented are the UK, Greece, Serbia, France, Poland, Denmark, Israel, Luxembourg, Latvia, Hungary, Turkey, and Belgium. In the last five years (2014-2018), 136 authors have been published, out of whom 91 (66.91%) are Romanian and 45 (33.09%), foreign. A small increase in the number of the foreign authors can be observed, but not a significant one.

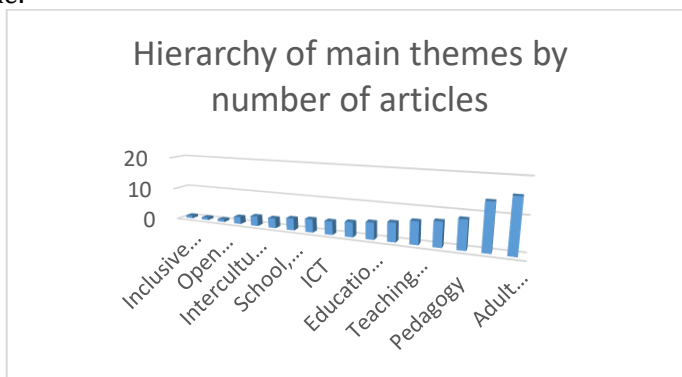


Figure 1: Main themes, hierarchy by number of articles

With regard to the academic degree criterion, the large majority (492, 77.48%) have an academic affiliation, 49 (7.72%) are postgraduates, 36 (5.68%) hold a PhD degree, 24 (3.78%) are PhD students, 13 (2.04%) are students and 13, masteral students, and 8 (1.26%), practitioners. 497 (78.27%) have an

academic affiliation and 138 (21.73%) a non-academic one. A double-blind peer-review process is conducted for each article, so the authors' affiliation is not a publishing criterion. However, the great proportion of academic-affiliated authors derives from their interest in research, with a view to publishing the results of their studies in a scientific journal.

Prevalent themes

Table 3 shows the main thematic areas, particularly relevant to the scope of our journal, publicly advertised on the journal website (<https://rse.uvt.ro/>). 19 educational themes are ranked as the most relevant for the JES. In figure 1, the main themes are presented in the order of the published articles.

The theme with the most articles, 77 (15.58%), is adult education, followed by educational psychology (68, 13.76%), pedagogy (the most general theme that includes theoretic approaches to education) (42, 8.5%), special education (36, 7.28%), teaching and learning (33, 6.88%), development and validation of competencies (28, 5.66%), educational policies (25, 5.06%), teachers' professional development (22, 4.46%), ICT (20, 4.04%), higher education (20, 4.04%), school, family, community (18, 3.64%), management of education (15, 3.04%), intercultural education (15, 3.04%), primary and preschool education

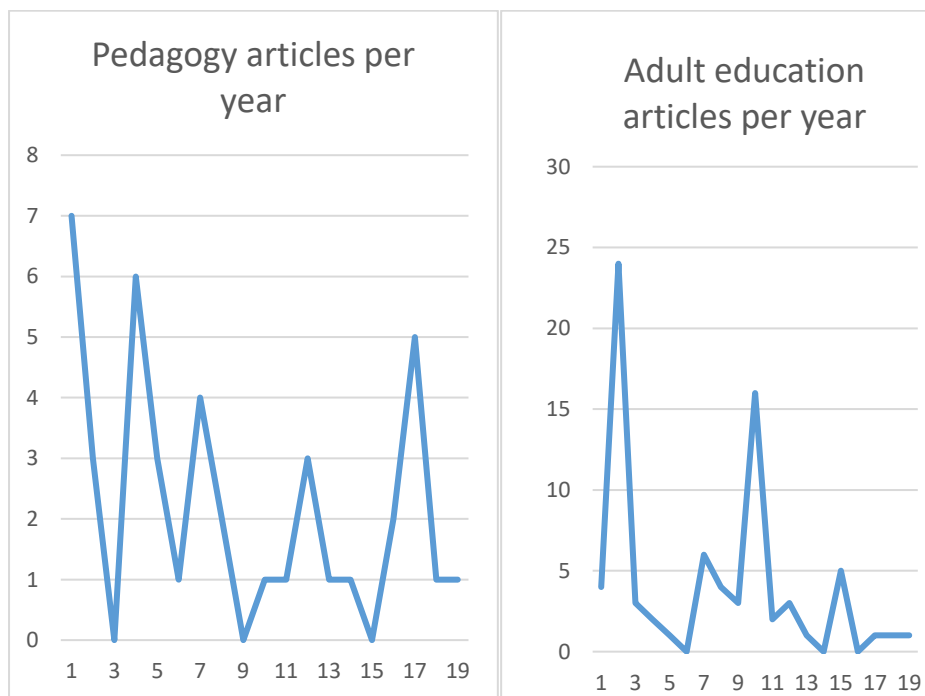


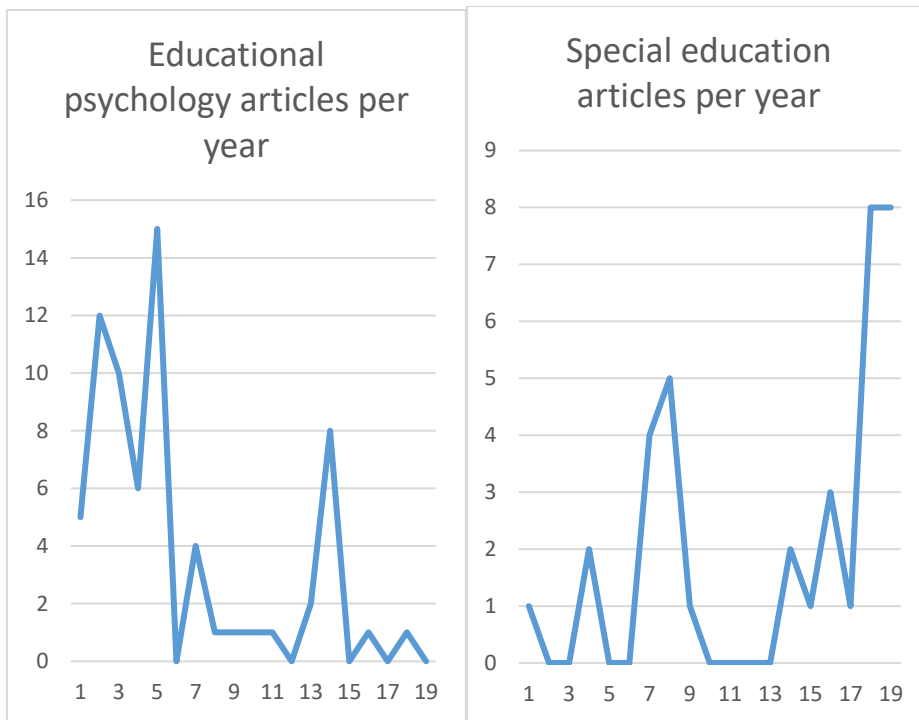
Table 3
Main thematic areas

Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	%
Pedagogy	7	3	-	6	3	1	4	2	-	1	1	3	1	1	-	2	5	1	1	42	8.5
Adult education	4	24	3	2	1	-	6	4	3	16	2	3	1	-	5	-	1	1	1	77	15.58
Educational psychology	5	12	10	6	15	-	4	1	1	1	1	-	2	8	-	1	-	1	-	68	13.76
Special education	1	-	-	2	-	-	4	5	1	-	-	-	-	2	1	3	1	8	8	36	7.28
Higher education	-	-	-	1	3	4	2	1	-	1	-	1	-	-	3	-	4	-	-	20	4.04
Intercultural education	2	3	3	1	2	-	1	2	1	-	-	-	-	-	-	-	-	-	-	15	3.04
Management of education	-	-	4	1	2	3	2	1	-	-	1	-	-	1	-	-	-	-	-	15	3.04
Educational policies	2	-	-	-	-	-	-	1	4	3	5	2	1	1	-	-	2	1	3	25	5.06
ICT	1	1	2	3	2	-	3	1	-	-	-	-	1	-	1	3	-	1	1	20	4.04
Teaching and learning	-	-	2	1	8	1	-	2	2	-	4	1	2	2	-	2	3	3	-	33	6.68
Primary and preschool ed	-	-	-	-	-	-	-	-	-	-	1	1	1	4	-	2	1	1	-	11	2.22
Inclusive education	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	1	-	-	4	0.81
Civic rights education	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	4	0.81
School, community Teachers' professional development	-	1	-	-	2	-	-	-	-	-	9	2	2	-	-	2	-	-	-	18	3.64
Competence development	-	-	-	-	-	1	2	-	5	2	2	5	2	2	-	-	1	1	-	22	4.46
Open learning	-	1	1	-	1	-	-	-	5	2	2	2	9	1	4	-	-	-	-	28	5.66
Book review	4	4	2	-	-	-	-	1	-	6	3	1	1	-	3	3	1	1	-	30	6.07
Events	1	2	-	1	1	-	2	2	-	2	1	1	1	-	4	1	1	1	2	22	4.46
Total	27	51	27	27	46	10	31	24	19	32	33	23	24	23	21	19	21	20	16	494	

*

Table 3

Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	%
Pedagogy	7	3	-	6	3	1	4	2	-	1	1	3	1	1	-	2	5	1	1	42	8.5
Adult education	4	24	3	2	1	-	6	4	3	16	2	3	1	-	5	-	1	1	1	77	15.58
Educational psychology	5	12	10	6	15	-	4	1	1	1	1	-	2	8	-	1	-	-	-	68	13.76
Special education	1	-	-	2	-	-	4	5	1	-	-	-	-	2	1	3	1	8	8	36	7.28
Higher education	-	-	-	1	3	4	2	1	-	1	-	1	-	-	3	-	4	-	-	20	4.04
Intercultural education	2	3	3	1	2	-	1	2	1	-	-	-	-	-	-	-	-	-	-	15	3.04
Management of education	-	-	4	1	2	3	2	1	-	-	1	-	-	1	-	-	-	-	-	15	3.04
Educational policies	2	-	-	-	-	-	-	1	4	3	5	2	1	1	-	-	2	1	3	25	5.06
ICT	1	1	2	3	2	-	3	1	-	-	-	-	1	-	1	3	-	1	1	20	4.04
Teaching and learning	-	-	2	1	8	1	-	2	2	-	4	1	2	2	-	2	3	3	-	33	6.68
Primary and preschool education	-	-	-	-	-	-	-	-	-	-	1	1	1	4	-	2	1	1	-	11	2.22
Inclusive education	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	1	-	-	4	0.81
Civic rights education	-	-	-	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	4	0.81
School community	-	1	-	-	2	-	-	-	-	-	9	2	2	-	-	2	-	-	-	18	3.64
Teachers' professional development	-	-	-	-	6	-	1	-	-	2	2	5	2	2	-	-	1	1	-	22	4.46
Competence development	-	-	-	-	-	1	2	-	5	2	2	2	9	1	4	-	-	-	-	28	5.66
Open learning	-	1	1	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	4	0.81
Book review	4	4	2	-	-	-	-	1	-	6	3	1	1	-	3	3	1	1	-	30	6.07
Events	1	2	-	1	1	-	2	2	-	-	2	1	1	-	4	1	1	1	2	22	4.46
Total	27	51	27	27	46	10	31	24	19	32	33	23	24	23	21	19	21	20	16	494	



Figures 1-4: Evolution of the number of articles per main themes

(11, 2.22%), open and distance learning (0.81%), civic rights education (4, 0.81%), and inclusive education (4, 0.81%).

The graphic representation below shows the evolution of the number of articles on the main themes (Fig. 1-4).

For each theme, the number of articles is rather erratic and does not follow a uniform and regular course, which can be explained by the publication of special issues dedicated to specific themes, where the number of articles on the same theme is high. At the same time, a relative continuity in pedagogical articles can be observed and a decrease in adult education and educational psychology articles, while there is an increased interest in the theme of special education. A worryingly small number of articles are dedicated to the primary and preschool education, which should be considered more closely as it is one of the three main domains of educational studies.

Research design

In terms of research design, 372 (75.3%) are conceptual, 46 (9.31%) present quantitative studies, 18 (3.64%), qualitative studies, and 9 (1.82%) use mixed methods. Event presentations (22, 4.25%) and bookreviews (30, 5.37%) are also published in every volume (Table 4).

This percentage is similar to the one reported by Cherrstorm, Robbins and Bixby (2016). They found a ratio of 72% conceptual to 28% empirical articles after analyzing a ten-year period for the Adult Learning journal.

In the last 5 years, the percentage of empirical articles has increased (from 24.7% per total to 39.17% in the last 5 years). This is an excellent indicator that the journal is becoming more applied and evidence-based.

Keywords

As presented by Cherrstorm, Robbins and Bixby (2016), we have also created a word cloud, based on the most frequent keywords. They reflect the main domains and themes addressed by the articles. The most frequent keywords are education, adult education, learning, lifelong learning, teaching, higher education, special education, disabilities, inclusion, validation of competencies, prior learning, teacher, student, motivation, well-being, assessment, and

Table 4

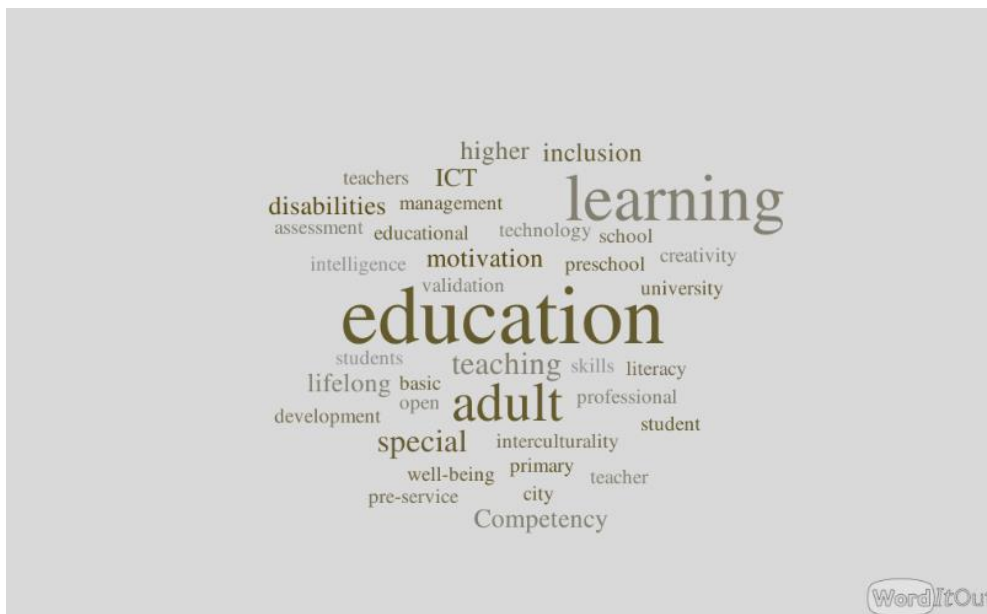
Research designs

Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	%
Conceptual	21	44	25	26	45	10	23	16	16	23	23	11	13	17	11	12	13	12	11	372	75.3
Quantitative	1	1			4	4	1	2	4	2	4	5	6	4	3	4	3	4		46	9.31
Qualitative					2	1	2			1	1	1	1	2		1	2	1	4	18	3.64
Mixed										1		4	2				1	1		9	1.82
Book review	4	4	2					1		6	3	1	1		3	1	1	1		30	5.67
Events	1	2		1	1		2	2			2	1	1		4	1	1	1	1	22	4.25
Total	27	51	27	27	46	10	31	24	19	32	33	23	24	23	21	19	21	20	16	494	

professional development.

20 Years of JES: Discussions and conclusion

By our overview on the two decades of existing of JES we can identify the journal's profile: how the issues are structured, which are the authors' profiles, which are the main themes addressed and which lines of research are prevalent. In this manner, main research trends can be observed, and an evidence-based practice improvement can be further implemented.



The editorial strategy of publishing a general and a special issue per year is welcomed, because it encourages the diversity of publications, but it also emphasizes the important research aspects for the JES and its institutional editors, the Department of Educational Sciences and The Romanian Institute of Adult Education. It is the publication of special issues that highlights the most recent educational themes not only from the Romanian academic context, but also from other more remote scholarly areas.

Throughout the surveyed period, a mean of 20 articles per volume (10 per issue) established itself as the standard number. This is a reasonable number of articles, ensuring permanent high quality and giving publishing opportunities to researchers.

The authors of the journal are mainly Romanian, but in the last 5 years, the percentage of foreign authors has steadily increased. As this is a Romanian Journal, published by an important Romanian University, it was meant to be a scientific platform for local academics. It promotes the specificity of the Romanian educational context and gives a chance for local qualitative educational research to be published. However, the JES needs to be more open and attractive to all researchers, for whom a dedicated strategy needs to be built, more open to foreign authors and their latest research. Our aim is to redefine our journal as a European Journal that promotes research encouraging educational, national and cultural diversity.

Regarding the thematic areas, we aim to cover extensively all the key themes that are at the heart of our academic interests. The themes that have been favored by our publication are as follows: adult education, pedagogy, educational psychology, and special education. They follow closely vital areas of education and teaching. On the other hand, judging from the educational specialization developed by our university, there is still just a small

representation for preschool, primary and secondary education. It is clear that these fields need to be more present in our future issues.

The conceptual research is the prevalent type of research design published in the JES. In the last 5 years, the percentage of empirical research has increased rapidly. Although conceptual research is basic in the educational sciences, we intend to correlate more with the current scientific trend by publishing more evidence-based research.

Following these findings, we further aim to publish:

- More articles about European educational research, more articles by foreign authors
- More Articles reflecting the specificity of the Romanian educational system
- More empirical articles, qualitative and quantitative
- More articles in the field of preschool, primary and secondary education
- More articles developed by early career researchers.

Also, as future aims, we would like to mention the introduction of a web-based editorial system, like the Manuscript Central/Scholar-One, to assign a DOI number to each article, and a citation tracker with greater presence in online search engines, greater indexing capabilities, aiming to enhance the technical editing procedures and to ensure increased quality and attractivity to the journal as a whole. We are confident that the new look of our journal cover and its friendly design will have a great impact on our readers.

It is most fortunate to conclude that all the aims formulated in 2007 which were planning further developments (Dumitru & Crasovan) have been amply fulfilled.

We would like to show our gratitude to our editorial teams for all these accomplishments, to the distinguished colleagues offering their support in their capacity as scientific board members, to all our reviewers for their constructive feedback, to our publisher, the West University of Timisoara Publishing House, and, last but not the least, to all our contributors and readers.

Authorship statement

The authors of this paper take public responsibility for the content and have had equal contribution in concept development, design, analysis, writing, or revision of the manuscript.

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University education of the educational professionals: from the “edu-myths” to the social impact

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We decide to start this article with the narrative of Laura Ruiz-Eugenio due to the coincidence that in 1999, the year in which the first issue of the Journal of Educational Science was published, she graduated in Social Education and began to collaborate in CREA’s researches. We include at the end, the story of Nerea Gutierrez as one of the researchers who more recently has been linked to the line of research on educational actions evidence-based.

The seminars of CREA “with the book in hand”

In 1999, the year in which the first issue of the *Journal of Educational Sciences* was published, I graduated in Social Education at the University of Barcelona. In September of that same year, Ramon Flecha, professor at the same university and founder of CREA, invited me to participate in the theoretical seminars "with the book in hand". Shortly after, I started working in FACEPA, Federation of Cultural and Educational Associations of Adult People.

These seminars had been done in CREA twice a month since its starting in 1991. Works not only from the main authors of the social sciences and humanities such as Habermas (1987), Freire (1970) and Merton (2010/1973) are read but from other disciplines. We have read Rita-Levi Montalcini (1988) in medicine, Eric Kandel (2012) in neuroscience and Stephen Hawking (1988) in theoretical physics. In each session, the pages of the work that have previously been agreed upon are discussed. Participation is very wide, from people who work at university such as Professors, PhD candidates and undergraduate students, as well as teachers and other professionals involved in entities and social and educational movements.

Each participant, as long as they have read the work, regardless of their academic level, can participate in the debate. The interventions start from a paragraph that the person has previously selected. When starting the intervention, the person reads the paragraph indicating the page where he/she

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is and then makes his/her contribution. The debate is based on an egalitarian dialogue in which contributions are valued according to their arguments and not according to the power position of the person who makes them. This way, it overcomes one of the handicaps that sometimes take place in the social sciences, such as talking about works that have not been read. One of the most famous cases was that of Althusser who ended up recognizing that when he wrote *Reading Capital*, he had not read *Capital*, but only had read his first volume and knew very little about Marx (Althusser, 1992: 196-197).

In these theoretical seminars, I discover a great contrast between the initial training I had received at the University and the needs as a professional of education that I find in FACEPA. University education in Spain, especially in areas such as education, has been far from the scientific evidences that had been shown to have a social impact. The students could graduate and even finish the Masters and the Doctorate without knowing the main international databases and the best academic journals. We graduated without knowing about the existence of these magazines because they had hidden them from us. This has a lot to do with the feudal model of Spanish universities in which the people who could be promoted in the academy were those who submitted to the Professor. CREA broke with that submission and was founded following the guidelines of the international scientific community, advised by the best universities in the world as well as by some of its main authors such as Robert Merton, creator of the sociology of science. Since its beginnings, CREA had the aim of generating a scientific research capable of identifying theories and practices that overcome inequalities and train professionals of the highest teaching and research excellence, coming from different ethnic groups, genders, ages and social classes. This is how CREA achieved its first challenge, creating an open, diverse, interdisciplinary and ethical centre that broke with the feudal chain of the Spanish university system. Currently, the academic in social sciences in Spain has changed a lot. Others joined in its transformation, but there are still those who resist the scientific evidence in education, clinging to the feudal structures of some faculties.

I was lucky that during my student period I could meet with teachers like Ramon Flecha and other people from CREA who not only read the main authors in the social sciences, but also included the evidences in their research, as well as generating research that had a social impact. Participating in the seminar “with the book in hand” opened me the door to training as an evidence-based education professional and, in this way, to be able to implement educational actions that help to reverse situations of social inequality.

The Romanian Institute for Adult Education of the West University of Timisoara was another research centre that, like CREA, has based its research on scientific evidence for social impact. IREA is a pedagogic research institute in the field of adult and continuing education, aiming to provide scientific and methodological support for all adult education institutions in Romania and to establish the link between the academics and practitioners in adult learning

area. The overall research aim is to improve the quality of the education for adults, and to identify ways to enhance their ongoing participation in learning, and for strengthening the lifelong learning dimension both at individual and institutional level.

From the beginning of the 2000s, CREA and IREA also began a history of collaboration. In the last 20 years, they have developed more than 10 research projects jointly with other universities within the framework of various European programs such as Socrates, Leonardo and Erasmus. IREA has participated in the research conducted by CREA, the RTD WORKALO (2001-2004) and the Integrated Project INCLUD-ED (2006-2011) of the fifth and sixth Framework Research Programs of the UE to which we will return later. The RTD and the Integrated Projects were the mechanisms of those research framework programs for the promotion of high-quality research, aimed at contributing to the resolution of social, economic and technological problems of European societies. The researches in which CREA and IREA have collaborated jointly with other European research centres have been aimed at providing scientific evidence that promotes the professionalization, the education of adults, the participation and the social inclusion of people from the most disadvantaged groups.

In the seminars of CREA and collaborating in the researches they were developing, I discovered theoretical arguments and scientific evidences that fit the professional needs of FACEPA and I was aware that the training I had received at university was not evidence-based but on “edu-myths”. For example, I had the opportunity to participate with Professor Flecha in the development of the publication "Adult and adult learning" (Flecha & Ruiz, 2000) incorporating the latest contributions on the learning capacity of adults throughout the life, thus overcoming discrimination based on age and a learning perspective based on deficits.

WORKALO: reseach by and with the Roma

At that time CREA was working on what it would be the WORKALO project (2001-2004). Due to its rigor and the knowledge it provided, it had a great political, scientific and social impact. WORKALO also offered to the professionals of the education very valuable evidences to promote an education of adults that would contribute to the discrimination that for centuries the Roma people had suffered.

WORKALO was the first RTD project, Research and Technological Development, of all the framework programs of the European Commission, focused on analysing the situation of the European Roma population. WORKALO was the antecedent of INCLUD-ED (2006-2011), the project of greater scientific rank and with more resources of the Framework Programs of the European Commission dedicated to school education, to which I will also refer later. In addition to IREA, two other European research centres from the University of Surrey in the United Kingdom and the Higher Institute for Social Services of

Lisbon in Portugal, as well as representatives of the Roma community in Europe participated in WORKALO.

The exclusion suffered by the Roma people has also occurred in the investigations that have been carried out on them. WORKALO and INCLUD-ED have been developed reverting this exclusionary tendency, including the voices of the Roma people in the process of developing these investigations. This has allowed identifying more rigorously, in both projects, the strategies that have followed the Roma people who have managed to successfully overcome social exclusion (Flecha, 2014). One of the mechanisms that were carried out for the inclusion of the voices of the Roma people was the creation of an advisory council formed by Roma people. The voices of the Roma people were not only present in the extensive field work that was carried out but also in each of the reports done, which when prepared, were reviewed and approved by the advisory council before its publication. In this way, it was not only possible to validate the results, but also to prevent the ethnocentrism that many researches about the Roma people had fallen.

In the four years that the research lasted, elements were identified in two key aspects. On the one hand, the situations that Roma people have to face when they look for work and the strategies they usually use to integrate themselves in the job market were the basis for actions and employment programs that were not only worked from the technical field, but also collecting interests and motivations of the Roma people, collaborating directly and actively with them. On the other hand, proposals for improvement in areas such as education, eliminating the ethnic segregation of European schools, an equal education for all respecting cultural specificities have been included in various decrees approved by the Parliament of Catalonia, in the European Parliament and in the Congress of Deputies of the Government of Spain (Sorde, Flecha and Mircea, 2013).

One of the ideas that usually emerged in the different countries where the fieldwork was carried out was the advancement of the Roma people in Europe and throughout the world, towards a progressive recognition as a people without territory. The World Conference against Racism was held in Durban in November 2001. In that conference, representatives of different Roma organizations contributed the definition of themselves as the "Romà", a community united by a common culture in different countries of the world that has neither claims nor State nor territory (IRU, 2001). In Durban they also claimed their right to have their people recognized and to be called the "Romà" people in all parts of the world.

A few months after the Durban Conference, the Parliament of Catalonia unanimously approved the resolution 1046 / VI: (1). It recognizes the identity of the Roma people and the value of their culture as a safeguard of the historical reality of this people. (2). Urges the Government to take the necessary steps to help spread the recognition of the Roma culture and its value to Catalan society (BOPC, 2001). This recognition was the prelude to the current Integrated Plan

of Roma People in Catalonia, a pioneering political deployment in the world for having involved transversally all the governmental departments of the Government of Catalonia, for having a budget and, for showing a strong involvement of the Roma civil society from their beginnings (Gomez et al., 2019).

The presentation of the results of the WORKALO project took place in April 2004 in the European Parliament. A resolution on the situation of the Roma people in the territory of the European Union was presented in the chamber, which included the conclusions and orientations of this project (European Parliament, 2005). The results of this project also reached the Spanish Court. In September of 2005 a proposal for the recognition of the rights of the Roma people was presented, promoted by a parliamentarian who attended the presentation of the results in Brussels in 2004 (Congress of Deputies, 2005). In Spain, the political impact of WORKALO also gave way to the creation of advisory bodies that include Roma people, such as the State Council of the Roma People, to which any measure that affects this group is consulted, before being implemented. The European Council has also collected the contributions made by WORKALO highlighting the importance of working with and for the Roma people, as well as encouraging the EU Member States to include the Roma community in the elaboration of any measure aimed at their protection, fight against anti-Gypsyism and social exclusion (Council of Europe, 2009).

In the last decade there has been a shift in the international scientific community towards a greater recognition of the Roma experience and the research teams already have the participation of Roma people (Amador, Flecha and Sorde, 2018; Aiello, Flecha and Serradell, 2018). For example, in those investigations that have been carried out due to the processes of Roma immigration from Eastern European countries, such as Romania, to Spain (Sorde et al., 2013).

The political impact that WORKALO had in Europe, led Ramon Flecha to be named Doctor Honoris Causa by the West University of Timisoara in 2007. Dozens of researchers who had been Ramon's students travelled to Timisoara to avoid losing the act of investiture. There his family and the professors Simona Sava and Teodor Mircea Alexiu of West University accompanied him. It was an act full of science, humanity and feeling, like everything that surrounds the contributions of Ramon.

By then, it was barely a year since I have achieved a scholarship to do my PhD. After those years participating in CREA's seminar and collaborating in some of its researches, I had clear that I wanted to direct my doctorate towards the educative actions based on evidences that were getting to have a social impact. This way, my doctoral thesis was linked to the university education evidence-based of the educational professionals.

INCLUD-ED: educational actions evidence-based

At the same time, I was able to participate in the integrated project "INCLUD-ED. Strategies for inclusion and social cohesion from education in Europe"

(INCLUD-ED Consortium 2006 - 2011; Flecha, 2015). The purpose of INCLUD-ED was to provide scientific knowledge to achieve academic success and social cohesion for all children and communities in Europe, regardless of their socioeconomic status and ethnic origin.

We know that in today's information society, education is a powerful resource to overcome social exclusion. However, many of the educational systems in Europe are not getting good results. The knowledge obtained with INCLUD-ED helps to reverse this situation by providing scientific evidence on those social and educational actions that are already contributing to overcoming educational and social exclusion.

The scientific evidence provided in INCLUD-ED promoted educational and social policies not based on occurrences but on scientific evidence of the actions that had the best results in overcoming school failure, problems of coexistence and exclusion in areas such as housing, health, employment, and social and political participation. Like WORKALO, INCLUD-ED was based on the communicative methodology including the voices of the most vulnerable groups throughout its process of research development, especially youths, migrants, cultural minorities. For example, Roma people, women and people with disabilities were taken into account.

INCLUD-ED involved 15 universities from 14 European countries developing 20 case studies in effective educational practices and 6 longitudinal case studies of communities involved in learning projects - and which have demonstrated to achieve excellent results. INCLUD-ED identified Successful Educational Actions (SEAs), that is, those actions that can improve school success, values, emotions and feelings in each context in which they are implemented (Flecha, 2015).

SEAs, as effective and transferable solutions based on scientific evidence, have contributed to develop both educational theories, successful practices and evidence-based policies. The results of INCLUD-ED have been included in several resolutions of the Parliament and the European Council. Some of them are the Council conclusions of the 11 of May 2010 on the social dimension of education and training (2010 / C 135/02); the Communication from the EC (January 2011) 'Tackling early school leaving: A key contribution to the Europe 2020 Agenda'; the Council Recommendation on policies to reduce early school leaving (June 2011) (10544/11); the European Parliament resolution of 2 April 2009 on educating the children of migrants (2008 / 2328 (INI)); and the European Parliament resolution of 9 March 2011 on the EU strategy on Rome inclusion (2010/2276 (INI)).

INCLUD-ED was the only social science research that the European Commission has included in the list of the 10 best European researches of recent times (European Commission, 2011). The scientific social and political impact of INCLUD-ED allowed me to access a research support from the Government of Catalonia to carry out a research stay for two years at the Institute for Education, Community and Society of the University of Edinburgh. The research project developed at UoE was on educational actions that are contributing to overcome social inequalities in the field of health, housing, employment and social and

political participation in Catalonia and Scotland (Government of Catalonia, 2012-2014; Ruiz-Eugenio, 2016).

In turn, having acquired that international experience in my research career gave me the opportunity of being selected by the Ramon y Cajal program of the Spanish Government to re-join to the University of Barcelona as a researcher for a period of five years. Currently, I continue working from the University of Barcelona on educational research committed to overcome social inequalities, within the framework of what is today CREA, a Community of Research of Excellence for All. In 2015, gathered in assembly, CREA members decided to transform us from being a Research Centre to a research community within the framework of the international scientific community. This community is made up of members from different research groups, universities and countries from different scientific disciplines. With this transformation, CREA continues to advance towards the scientific and human excellence that has characterized the research it has carried out since its origins.

IMPACT-EV and Scientific Literacy

European and world scientific research advances in the line of a communicative methodology that had been developed in WORKALO and INCLUD-ED with the concept of co-creation; including citizenship in the whole process of research development, as well as in the definition of the answers to the European social, economic and technological problems. But it also moves towards social impact (Flecha, Soler-Gallart and Sorde, 2015).

The social impact of INCLUD-ED contributed to the European Commission selecting the project "IMPACT-EV. Evaluating the impact and outcomes of European SSH Research (Flecha, 2014-2017) ", also directed by Ramon Flecha, as one of the investigations to finance in the seventh Framework Program of Research. The main objective of IMPACT-EV has been to develop a monitoring and evaluation system for the different impacts of research in social sciences and humanities. Nevertheless, IMPACT-EV has not only developed indicators and standards to evaluate the scientific impact of SSH research, but also its political and social impact. Understanding social impact as social improvements achieved because the implementation of the results of a particular project or research study. Our societies have already defined the challenges and objectives of society (such as the objectives of the EU 2020, the UN Millennium Goals, etc.) and need researches that create knowledge to develop them.

The result of the work carried out in IMPACT-EV is SIOR (Social Impact Open Repository). This is an open and free access repository to display, share and store the social impact of the research results. SIOR responds to a growing demand that society makes to science and scientists that advances that are having a social impact are within the reach of all citizens (Pulido et al., 2018). SIOR has also contributed to the advance towards the scientific literacy of the population, in line with one of the most revolutionary transformations that have

taken place in the history of science. This comes hand in hand with the Open Access movement. Currently, any scientific evidence that has obtained public resources must be published in open access in the next 10 days. Anyone anywhere in the world can have access to scientific knowledge.

From the movement of democratic education of adults in Spain, there is also progress towards the promotion of scientific literacy of the most vulnerable groups. For example, FACEPA is jointly developed with La Verneda-St. Marti Adult School the "ScienceLit project: Scientific literacy for all!" That during the 2016-2018 period obtained funding from the ERASMUS + program of the European Commission. This project also involved organizations from Germany, Greece and Slovenia. Its purpose is to promote and disseminate scientific knowledge in society, especially among the most vulnerable groups such as young people and women without university qualifications. This scientific literacy is carried out through one of the successful educational actions that identified INCLUD-ED, the dialogic gatherings. In the dialogic scientific gatherings, people without academic degrees are reading scientific works and articles. Non-university people through reading and dialogue are acquiring scientific knowledge that has a direct impact on their lives. For example, the collective knowledge they create in these discussions helps them make better decisions about their health. However, it is also having a direct impact on improving their capacity for argumentation based on science, as well as respecting the contributions of the people who participate.

This revolution in the scientific world, leads to the knowledge of the successful educational actions is available to everyone, not only the professionals of education but families, neighbourhoods and the most disadvantaged communities. This is what has happened in more than 3000 schools around the world that are implementing successful educational action

Training new generations of young researches in scientific and human excellence

Rocio Garcia-Carrion was another of the researchers who was trained with Ramon Flecha in CREA, linking her doctoral thesis to one of the INCLUD-ED case studies. Both of us developed the doctoral thesis practically during the same years at the University of Barcelona. Shortly after presenting the thesis, she also had the opportunity to do a postdoctoral research at the University of Cambridge. The research project, with which she was selected within the Marie Curie Actions of the Framework Program for European Research, deepened the implementation of two of the successful educational actions identified by INCLUD-ED, the Interactive Groups (IG) and the Dialogic Literary Gatherings (DLG) as learning environments. Back from Cambridge, Rocio wins one of the most prestigious contracts in the Basque Country's research plan, the Ikerbasque contract, as well as a Ramon y Cajal contract. These contracts lead her to continue developing her research career at the University of Deusto and open a line of research on IG and DLG there. There is currently a lot of scientific literature on the impact of IG and DLG on the improvement of learning, values,

emotions and feelings (Garcia-Carrion, Molina and Roca, 2018; Garcia-Carrion, Molina-Luque and Molina-Roldan, 2018; Villardon-Gallego et al., 2018).

The IG are the form of organization of the classroom that, at present, gives better results in the improvement of learning and coexistence. Within the same classroom, the students are divided into small heterogeneous groups in terms of learning level, cultural origin and gender. An adult person is responsible for invigorating the interactions that occur in each of the small groups. This person can be either another teacher, a relative, a member of the community or a volunteer, for example, a student of the university. In each group, they perform an activity of 15 to 20 minutes long about some instrumental content such as language, mathematics or science. When the time runs out, the group changes both of volunteer and activity. Therefore, in an hour the whole group highlights four or five activities. In IG, interactions are multiplied, and learning is accelerated while increasing the effective work time. Being heterogeneous groups, some of them finish the activity before the others. That is when the adult person promotes his/her help to those who have not yet finished, not giving them the solution, but helping them in the resolution process. These interactions improve and consolidate the learning of everyone, not just of those who find it more difficult. The most advantaged students also learn because it is known that we consolidate our learning when we have to explain it to others. Nevertheless, not only they improve instrumental learning, but they also improve in values because solidarity is not only something that can be talked about but is part of their day-to-day life in IG.

DLG are an educational activity that takes place both with adults and in pre-school, primary and secondary education. In these gatherings the best literary creations of humanity are read. The adults read the original works and the children read works adapted to their age of very high quality. As in the other dialogic gathering, the group decided the work to be read and the pages to be read prior to the gathering session. Each participant has to select a paragraph and relate it to some reflection, relating it with his or her daily experience. In the DLG both adults and children have read works such as *Ulysses*, *Arabian Nights* and *Don Quixote*. The egalitarian dialogue on which these gatherings are based, creates a climate of trust in which all opinions are respected and valued. There is much evidence on how DLG have had an impact on the improvement of language learning and literacy, as well as an impact on the improvement of values, emotions and feelings.

As Ramon Flecha did in CREA, Rocio created a "seminar with the book in hand" in the Faculty of Education of Deusto. This seminar was soon joined by other researchers and students who moved because they wanted to link their academic career to scientific evidences.

Nerea Guitierrez is one of them. Nerea studied her Bachelor Degree both in Primary and Early Childhood Education and her Master Degree in Learning and Teaching of Spanish in Multilingual and International Contexts. In 2017 met Rocio at Deusto University and started participating in the theoretical seminar.

When meeting Rocio and the seminar, Nerea found the IG and the DLG. She decided then to start her PHD in Dialogical Pedagogical Gatherings and English learning in the initial formation of Primary Education teachers. This is how she summarizes it:

“The experiences that I have had during my educational background had left a mark on me by a clear distinction of roles depending on the position, academic experience and age you had; A vertical structure like this triggered struggling with team work. However, I had the great fortune of running into a person who showed me that the rules of the Academy were made by people and that cooperation didn't depend on age or academic achievements, but on feelings between people. This was a turning point in my life as this person showed me that with interactions based on egalitarian dialogues and rowing all to one, the success could turn greater, which would imply a greater benefit in the training of children. This person I speak of had two qualities, very special and essential, always integrated into her speeches. The first one is that she never spoke in the first person singular; she would always made reference to "us", to teamwork, to the network of collaboration, to the group of mates thanks to which she had reached all her goals. The second is that all the research she carried out was based on scientific evidence with social impact, which meant the goal of everything she had done was focused on the improvement of education, feelings, values, thus, the life of children and, in general, society.

This was something I admired from the very beginning and that helped me, even more if possible, to value all the work she had been doing and to know that I wanted to be part of it...and that is how I ended up knowing more about the Successful Educational Actions (SEAs).

My first contact was with the DLG in a seminar that was held once a month with colleagues from the Faculty. It was a magical space where we left aside the chores of everyday life to enter into a story that we might had never come to understand in the same way by ourselves. It was a moment in which all the participants had a voice, all our contributions were valued, which made me wish to play an active part in the work carried out and share reflections. Luckily, it is a space that still exists nowadays and to which little by little new faces have joined. After that, the Multidisciplinary International Conference on Education Research arrived at the university where I work, and I was lucky to be able to participate as a volunteer and get a little closer to the research that was being done in the area of education, research based on evidences. Afterwards, I was given the opportunity to participate in the seminars “with the book in hand”, to attend the meeting of learning communities, the congress of gatherings, the video forums, etc. It caused such an impact on me and meant that much to me that we decided to choose the topic of my PHD around a theme that emerges from them, thus obtaining opportunities to develop my career around this subject. It is a great pleasure for me that I had the chance to start developing my career as a young researcher, surrounded by people who believe and rely on me. People who work to improve education, with actions that are having a social

impact and that have demonstrated that truly improve both people lives and the relationships between them.”

Ramon Flecha throughout his research career and in the last 20 years, manage to face a feudal university, breaking its walls and the "edu-myths" in the way in which the future professionals of education were trained. He has helped to train education professionals and young researchers from the scientific and human excellence. Others recognize its relevance and follow his guidelines by training our students, future professionals of education in the best scientific evidences that will improve many people's lives.

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What we can learn from intergenerational collaboration in research?

Irina MASLO*

Abstract

The purpose of this biographical paper is to reflect generational changes in the landscape of educational sciences during the last 20 years. Rapid change within the educational science generations on the one hand, and in the gap between the research-generations has been observed in the last years at the international level. despite this fact, the intergenerational collaborative research has had impact on carrier advancement of younger research generations. Therefore, this paper aims to find out the evidence on what we can learn in intergenerational research collaboration. The theoretical background of the current paper is based on the human collaboration concept in the form of transfer and transforming the best practice patterns and developing self-experience with new knowledge, skills, and attitudes (špona, 2018: 18). The ethnomethodology of ex-post-facto 'inner-dialogue' was chosen to find answers to the research question, targeted on reflecting on collaboration as social life impact on selected different researcher generation cases with the career advancement from school teacher to scientific institute director as a method of analysis of the human collaborative practice of perceiving people, places and events as "categories" of "collaboration," and to use these to explain collaborative actions. the evidence of scientific, social and practical impact of intergenerational collaboration, and the sustainability of collaborative research will be explained, based on experience with the excellent team of West-Timisoara University. Biographical intergenerational collaboration stories of three research generations have impacted research career advancement and will contribute to the international discussion on what we can learn from intergenerational collaboration in research.

Keywords: educational research, generational change, intergenerational collaboration

1. Introduction

The purpose of this biographical paper is to contribute to the discussion in the Journal of Educational Science on generational changes in the landscape of educational sciences during the last 20 years, for the anniversary issue.

The topic of this special issue of the journal seems to be extremely timely because of the rapid change of the educational science generations, and there is only little time left to observe and reflect collaboration practice of three

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generations of educational researchers currently working simultaneously at the University of Latvia.

The idea is timely also, because the collaboration between the research-generations has crashed in the last years, which does not depend on the institution's or the country's contexts, but on global development. This becomes evident through the observed educational research practice, through communication between the researchers themselves, and with international students.

The *theoretical background* of this biographical paper represents three research generations at the Scientific Institute of Pedagogy of the Faculty of Education, Psychology and Art of University of Latvia (further named in text as 'Institute of Pedagogy or Institute'), and is built on two theses of my supervisor, professor, Dr. habil. paed. Ausma Špona, the founder of pedagogy of collaboration in Latvia in the 1990s:

1) In Latvia in the 1990s, the essence of the paradigm of pedagogy is changing - the pedagogy of authoritarian action moves to a pedagogy of human collaboration, in which two or more people move towards a common goal with mutually agreed means of achievement, approximating assessment and self-assessment of achievable results (Špona, 2018:18).;

2) Collaboration is a form of transfer of experience, the ability to transform the best practice patterns developing self-experience with new knowledge, skills, and attitudes (Špona, 2018:18).

The research question is generated from the main question considered by my supervisor in her life and work: "Will people benefit from my living and working? What can I do to help people, society, the state, and science?" (Bernāne, 2006). This is not surprising, I think. Having the great opportunity to work together with the "biggest", in my opinion, national pedagogical research personality of the Millennium era, I come to the understanding, that her thought has grown into my blood with the same question: *Why did life give me this unique opportunity to grow as a researcher, along with and together with this outstanding, in my opinion, personality? What can I personally do to help people, society, the state, and for the development of Latvian national pedagogy?*

The ethnomethodology of ex-post-facto 'inner-dialogue' was chosen to find out the answers of the intended research question, targeted on reflecting of collaboration as social life impact on three selected different researcher generation cases with the career advancement from school teacher to the scientific institute director as a method of analysis of the human collaborative practice of perceiving people, places and events as "categories" of "collaboration," and to use these to explain collaborative actions (Eglin & Hester, 2006:48). Analysis of biographical career advancement stories of my scientific supervisor, myself and my doctoral students, was conducted using the own experience of doctoral study on impact of collaboration on active life position of collaborators in biographical contexts at the starting point of my own research career led in defence of doctoral theses (Maslo,1987).

Starting from three biographical doctor degree interconnected generation biographical stories of rapid career advancement as a researcher – of my doctoral theses supervisor, my self-selves and my doctoral students who thanks not least to the collaboration with West- University Timisoara, conducted the first joint studies with publishing its results in the current journal. These joint studies will be especially reflected biographically, augmented through the biographical evidence on career advancement, related to the paper purpose to discuss on what we can learn from intergenerational collaboration in research.

2. Three research generation career stories

Research carrier advancement story of my supervisor, Ausma Špona, born in the 1930s

My dear “doctor mother”, on the acquisition of the profession 1949, graduated 7th Grade, entered the Cēsis Teachers' Institute in Latvia. In an interview to an official national magazine the professor tells:

The only entrance exam I had was - a musical hearing test. We fought at the institute to become excellent and get a bigger scholarship. We never went out to prepare us for the seminars. Collaboration between senior and younger students was particularly valuable” (*Gžibovska*, 2006).

Teaching pedagogy at University of Latvia since 1965, the professor got the Doctoral degree in pedagogy (Dr. habil. paed.) in 1983, and the title of professor – in 1984 (*Latvijas Enciklopēdiskā vārdnīca*, 2016), becoming the head of the Department of Pedagogy and Psychology as the permanent department of University of Latvia, led it from 1983 till 1996. In 1986-1990 the University of Latvia Scientific Council in the field of pedagogical science was working actively. 40 scientists have obtained their Ph.D. degree in Pedagogy in this time-span. On June 17, 1996, the Senate of the University adopted the decision No. 53 "On the establishing the permanent Institute of Education and Psychology of the University in Latvia". The Rector's order was to reorganize the Department of Pedagogy and Psychology into the Institute of Pedagogy and Psychology on August 1, 1996, led by a professor in 1996-2000 (*PZI*, 2015).

Dr. habil. paed. Ausma Špona is currently the oldest acting professor in pedagogy. Her research engagement in general pedagogy, theory, and methods of upbringing are still in development. She participated in international research studies together with scientists from Germany, the Netherlands, Greece, Spain, and Russia. Since 80tis of the 20. century, under her scientific guidance, 64 dissertations (including of the author of this paper) have been defended and a number of current doctoral dissertations for prospective Latvian and German researchers in pedagogy (Špona, 2018) are supervised by the professor “as voluntary researcher” at the University of Latvia, is the author of more than 200 scientific and methodical publications, 14 monographs and collective monographs (Špona, 2018).

Her human pedagogical ideas built the School 2000 reform and built the base of the School 2030 reforming in Latvia today.

Research carrier advancement story of the author of the current paper, born in the 1950s

As an innovative school and HE teacher, defended in 1987 the promotional theses "Impact of out-of-school activities on active work-life position". Habilitated in 1995 in Individualization of the schooling pedagogical process on the bases of international accreditation of national level innovations for learning supported schooling organization, school cross-curricula, learning-centred German as school subject curricula for 1., 2., 3. foreign language, the bilingual education models for minority education in Latvia were elaborated (Latvijas enciklopēdiskā vārdnīca, 2006).

Since 1997 - a professor of the University of Latvia, throughout this period, serving as a creator, implementer and director of the Institute of pedagogy (faculty department) of the University of Latvia (2007 -2015), and the Head of the Scientific Council of the same Institute (2015-2019), creating, implementing and directing (2007 -2016) the master's degree programme on Educational Treatment of Diversity. Leading the Doctoral school "Human capacity and life-wide learning in inclusive contexts of diversity". Consulting expert of national curriculum development and European adult educational policies development in Ecorys and EduMap Horizon 2020 program projects.

Research, publications and supervising of 15 defences and 5 current doctoral theses covering the lifelong learning (LLL) practices: learning activity for promoting primary school pupils' social competence; development of adolescents' social-cultural competence; youth participation in integration process in multicultural environment; the learning outcomes approach in formal second chance education of youth in vulnerable personal situation; opportunities of applying continuing bilingual, intercultural and inclusive education experiences for inclusion of third-country nationals; integration of science teacher and educator identities through student's pedagogical activity; self-directed learning at university; mentor's support to science and languages teacher's team in the implementation of bilingual learning as innovation in continued training; transversal skills and main attributes of constructivist transformational learning activities for promoting excellence in education and workplace training.

Research career advancement story of my doctoral student, born in 1970s,

Leading researcher, Docent, Dr. paed. Manuel Fernandez J. Gonzalez, a young researcher with the excellent career from music teacher to career of leading researcher in 5 years at the University of Latvia, Vice-head of the Promotion Council in Pedagogy at the University of Latvia, was elected as director of the above-named institute in 2015, responsible for the research programme "Human, technologies, and quality of education" of the University of Latvia, and 2017 hold the young researcher research and innovation post-doctoral grant for 2017-2020. As elected member of the international network "Leadership and quality of education" and co-convenor of ECER network on quality of education, he holds lectures and seminars on research methodology for

graduates and postgraduates at the University of Latvia, encompassing the computer-assisted (INTERACT 17 software etc.) qualitative analysis on teachers' virtuous leadership, character education, professional identity and pedagogical leadership of university staff, vocational education and training.

In 2015-2017, he was an international coordinator of the inter-university master studies programme on educational treatment of diversity contributed to the implementation of e-learning at the university.

His recent post-doctoral research proposal is to implement a web-based research program called ARETE for TC&CE instruction by schools. The research proposal is innovative as it will focus on the combination and reconciliation of Character Education and Transversal Competences for teaching. Under this umbrella, the proposal will address research questions which are relevant for the modernization of education in Latvia and provide a scientific foundation for design/implementation of online platforms which support Transferable Competences and Character Education. Regarding the topicality of the project, the proposal is aligned with the development of the Latvian economy and society. That is, the proposal contributes to fulfilling international recommendations and ongoing actions in the education systems in Latvia (Development guidelines for education 2014-2020, Career education project 2013, etc.). Nevertheless, combining character education and transversal competences together is relevant for the new Latvian economy and society and reformation of school education to School 2030.

His research has led to a wonderful career from 1990s orchestral and fault-soloist in France, Latvia and Lithuania. Finland, Switzerland and Germany acting as director of the Music school in France (Strasbourg) and as Head of the department in St-Louis conservatorium in Alsace (France) to Latvian Catholica-school and France-lyceum in Riga choir conductor and teacher of Spanish as foreign languages in 2004-2009 and rapid scientific career from research assistant to leading researcher and research institute director, and individual research and innovations grand holder would be worth its own exciting narrative story and exploration.

3. Research conducted in a dialogue between research generations

The first collaborative research opportunities for my generations young researchers were provided by the first director of the Institute of Pedagogy, professor Ausma Špona, in 80s-90s given as the intergenerational learning opportunities in joint European level research methodology development projects led by professor Josef Held (Tubingen University) by conducting of quantitative and especially qualitative research on video-recorded "youth voices" in multicultural learning. These research settings are open until nowadays for all research generations but are actively used only by the second and third, nor by the first and fourth generations.

The German collaborative research space

This German collaborative investigation space was extended thanks to the collaboration opportunities inside the University of Tübingen with professor Gunter Huber from the same University, involving us since 2003 in approbation and development of new computer-supported text, pictures, audio—and video-tapes analyses software AQUAD 5-7 (Maslo et al, 2008), so as in collaborative Spanish speaking research space which was continuously developed later by the third generation of young institute directors in last 10 years.

The Spanish collaborative research space

The Spanish collaboration space allowed to implement the competence oriented (Maslo et al, 2006) inter-university e-master's programme 'Educational Treatment of Diversity' in 2008–2010 as the first pattern in Latvia versus distance learning with broad opportunities to conduct evaluative studies on its impact of the learning outcomes of students at the university.

A study conducted during the implementation of this master degree programme in 2008–2010 (Birziņa et al, 2012) explored how challenges were secured in e-learning in order to promote students' generic competence at universities as promoters of lifelong learning. E-learning is a means of promoting the changes in academic studies and provide broad opportunities to integrate non-formal and informal learning elements into formal education by individualisation (Maslo, 1995) of learning opportunities flexible in time as well by creating the e-environment which facilitate the development of students' generic competences.

The next study on university teacher's competences needed in 21. century and specially to implement e-learning at the universities was conducted in 2010-2012 (Surikova et al, 2009).

The secondary qualitative data analyses allowed to construct the evidence-based theoretical model of e-learning and explain the subjective and objective conditions to have been ensured for the sustainable e-learning at universities (Maslo et al, 2014). Least, but not last, in my opinion, the collaborative activities provided in the programme from 2015 to 2018 were analysed unseeing learning analytics to explain the theoretical model of collaboration in e-studies, just as in the publishing process of West-University Timisoara's new academic book by Sense-Brill (Maslo, in publishing 2019 August).

The Asia and Europe collaborative research space

The Asia-Europe collaborative research space was opened to us at the same time, in 2008, thanks to the invitation to participate in the Asia-Europe official research network in lifelong learning (ASEM LLL) by Professor Dr.h.c. mult. Arne Carlsen, the founder, establisher and empowerer of this network. The research opportunities for all three generations of researchers were extended to all European and Asian countries, including Romania, represented by the West-University Timisoara. The University of Latvia is the only European university that participates actively with the institute researchers in all its five sub-networks, and conducted studies with joint publications, that are listed on the ASEM LLL HUB web-page.

Active participation as partners in the two first international projects was the first quality proof of research capacity of our intergenerational team. These projects, initiated and practically led by German and Romanian adult education institutes and West-University of Timisoara as Members of ASEM LLL Hub, opened new important international research directions showing the ways for creating research innovations in 2010-2012:

The first one - creating a new online learning environment to support the development of the entrepreneurial competences for young people and graduates, where we have jointly in international small teams evaluated the training needs and learning interests of young entrepreneurs to identify the interest domains for starting a business from youngsters, that are going to graduate, and potential barriers, so as to define a curriculum for developing entrepreneurial competences, using eMentorship. A transnational needs analysis report of the CReBUS project "Creating a business in the digital age – developing entrepreneurship competencies for young Europeans through eMentorship" was developed by the Latvian partner (Surikova et al, 2013). An online guide on quick start of a business and a Booklet "Entrepreneurship for Students in Social Sciences" (Ardeleanu et a, 2012), the proceedings of the International Conference "Entrepreneurship Education - A Priority for the Higher Education Institutions – CReBUS" (Surikova & Maslo, 2012; Surikova & Pigozne, 2012; Maslo & Fernandez, 2012; Fernandez & Vostrikovs, 2012;) and joint publications were published, e.g. in the current Journal (Martin et al, 2011).

The second one aimed at developing and maintaining a European network that will promote the implementation of the Validpack instrument in over 20 European countries to raise awareness of the existence of the Validpack - a competence assessment instrument for trainers resulting from the VINEPAC project,- in all European countries by establishing national Validpack contact points to identify the need, usefulness and potential of the Validpack instrument in different national contexts by conducting testing of Validpack in interested organisations and most likely to further use the instrument in assessment centres, adult education centres/ institutions, professional associations, employers, etc.. The validation of informal and non-formal psycho-pedagogical competencies of adult educators, especially the by the Validpack instrument that facilitates the documentation and the evaluation of trainers' competences acquired in formal, non-formal or informal learning contexts, were created and published (Duvekot and Geerts, 2102), and further in a set of joint publications in the current journal (Surikova et al, 2012, Rutka et al, 2012, Maslo et al 2012).

The third one was the first project by our intergenerational research team for international ASEM LLL. It was an expert study aimed at elaborating evidence-based recommendations for LLL policy 2016-2020, for regional communities and society as a whole. The evidence-based recommendations of these studies had a high impact on the National reform programme of Latvia 2016-2020 for the implementation of the "Europe 2020" LLL strategy. This study explored by mixed-method analysis of early school-leavers' and evening schools teachers' 'voices', through a field study on second-chance education, conducted in close

collaboration with evening schools, local and regional environment, and national authority bodies in a comparative Asian and European Life-Long Learning (ASEM LLL) perspective. Based on evidence on reasons to leave schooling early, the recommendations on creating a universal, selective and indicated system of preventive, compensatory and monitoring measures to solve the problems of early school leaving, was developed by ASEM LLL experts from India, Latvia, Lithuania, and the Philippines.

This project as well as the next three projects challenged us to a higher level of responsibility, creativity level of independence, high level of initiative and demonstrated our high-level satisfaction with participation (Maslo, 1987:109) in research being responsible for people, state and science) (the research result had been an EU ex-ante condition for investment for 2016-2020).

Currently three institute projects 2016-2019 have challenged our intergenerational researcher team to act as experts in two Erasmus+ KA2-Capacity Building in Higher education projects for the development of the e-STEM programme and integration of special needs inclusive education, in Egypt and Arabian countries, and one national level project for promoting the reform School 2030 by implementation of character and value education.

These projects enable us to work with highly qualified partners in these fields, nowadays so important for Higher education, using the most up-to-date innovations in teacher education in eLearning and ICT. In this project, we will also carry out a transformative study to create an innovation culture in Latvia, in cooperation with industry specialist service partners, creating synergies with the business and promoting scientific cooperation with the national economy.

These three main research spaces, created at the Institute of Pedagogy and led by all three research generation representatives, gave master and doctoral students active participation opportunities in joint national and international projects providing them not only their own benefits as researchers in career advancement and rapid permanent and sustainable employment as young or third generation researchers, but also intergenerational learning opportunities to conduct research for people, society, the state, and pedagogy as science by learning from patterns of high-level responsibility, creativity level of independence, high initiative level and satisfaction from one's own attitudes in active participation in research activities, and becoming respected as a team-member at national and international level on the one hand, but on the other hand, stipulated a gap between the first German-speaking research generation and a new English speaking generation, because the switching into the English speaking research spaces, as a new requirement in research career advancement, were most challenging for most first generation German orientated researchers. In particular, therefore, the author of this paper is happy for the opportunity to show the intergenerational collaboration opportunities of researchers from different spaces using diversity as a positive and enriching factor. Other factors impact the gap between the new, fourth and the previous research generations, what I think will be useful to discuss in this paper.

4. Discussion

In my opinion, this gap between the research generations roots neither in the challenges of the information society, nor in advanced technologies. It roots, on the one hand, in fragmentation of the narrow new-liberal commercialised specialisation of education and lack of systemic views on humans as personality in educational settings, what has been slowly lost in the last 20 years, and in moving from active life-work position to the personal images position acting as actors empowering themselves to be the main actors on the “life-work stage” on the other hand, which is evident through observations, face-to-face and social media communication too, word wide.

Professor Špona (2018) writes:

A 21st-century human differs from other historical epochs of homo sapiens with exceptional understanding of the values of life. This is evident through the individuals' and social groups' need for self-realization. People want to improve their well-being, work and get paid, get education and health. (Špona, 2018:16).

A rapid change in the situation in society requires predicting the future-oriented development of pedagogically-based cognition, the possibility of providing education to everybody for being able to manage one's own learning and to be self-confidence (Špona, 2018:16).

The interdependence of providing each individual of the society with opportunities to acquire full-fledged education, on the one hand, and personal responsibility for self-education, learning and self-development results, on the other hand, has an impact on the subject of pedagogy (Špona, 2018:16).

The learning of the new generations has to be based on the concept of holistically of nature, people and society. Attitudes to themselves, peoples around, nature and sociality is the key to human development, write professor in 2001 (Špona, 2001) and in 2018; Špona, 2018:21):

Biosphere or human and nature content is made up of the natural environment, space, production, and economic processes, ecology, living and inanimate nature. *The second sphere is the system of human and social relations - the social sphere*. By recognizing this sphere, a child, a young person, an adult, is aware of himself as a social being responsible for people, society and himself in accordance with his conscience and the needs of society. The content of the third sphere is formed in the person itself: self-awareness of consciousness, cognitive need, rational and emotional thinking, self-regulation of behaviour, acquisition of personality traits and abilities. It is a *human psycho-sphere*.

In the manifestation process of psychic mind and emotional attitude, the transition from the inner form of activity of the mind to external (practice: speech, action, behaviour) activity takes place (Špona, 2018:17).

And she cites, what the Italian literature scientist and philosopher Nuccio Ordine (born 1958), who has been involved in the world-scientists'

discussion on the value message in modern life and the principles of material distribution, says¹:

The knowledge itself is an obstacle to money omnipotence and utilitarian delusions. You can buy everything, right, from parliamentarians and finally with judges, from power to success: everything has its own price (Ordine cited in Špona, 2018:16).

In the name of economic interests, the memory of the past, humanitarian disciplines, classical languages, education, free research, fantasy, art, critical thought and a cultural horizon that should inspire every area of human activity (Ordine cited in Špona, 2018:16).

As a practiced school and high school teacher and doctoral student of the professor, Ratniece (2014), cites what the professor tolled about the collaboration in the interview:

The social constructivists, as well as human pedagogy representatives, thus maximize the significance of the correlation between the learner and the teacher trainer or teacher in the teaching/learning process. Millennium Goals advocates continue that reality is created by our own actions, activities (Ratniece, 2014:226).

These three research generations biographical ex-post-facto inner dialogue on collaboration impacts research career advancement and will contribute to international audience discussion on *what* we can learn from intergenerational collaboration in research.

5. Conclusion

We can learn from intergenerational collaboration in research:

1. The key to collaboration is the researcher attitude. The term, 'Attitude' finds an English equivalent only a few years' ago and is a transversal idea of all scientific work and life of the professor (Špona, 2001; 2009; 2018). This idea is at the centre of the School 2000 reform and of the School 2030 reforming in Latvia today.

2. The unique intergeneration research opportunities provided by my supervisor in 90s, let us together implement a number of innovations at the Latvian educational system level: to facilitate the implementation of individualised curricula in Latvian general and vocational schools at the national level in 1990s; and to implement bilingual education in Latvian social and cultural context.

3. Based on the definition of social activity, defined in the professor's monograph as characteristic of active acting in society (Špona,1979), the mathematical processing of author's dissertation observation data was processed to explore the features of active life position (Maslo, 1987:109). The following main features of collaboration effecting the career advancement were evident: 1) the high level of responsibility, 2) creativity level of independence,

¹ Ordine N. Nelietderīgā derīgums. Rīga: Jāņa Rozes apgāds, 2017, p.14

3) high level of initiative and 4) satisfaction with participation in research activity.

4. In fact, the intergenerational collaboration in research affects the synergy of ideas which in a cyclical sequence transforms the theoretical constructs in more and more universal applicable practical knowledge:

Processes in the society nowadays change the position of the person - from the performer of actions to an active, independent and responsible actor. It is promoted by new upbringing ideas in the work of philosophers, educators and also social and exact scientists (Špona, 2018:18).

Along with the change of position of learners in pedagogical processes in schools and universities, new pedagogical ideas are created and theoretically defined but not yet implemented in methodological approaches to pedagogical practice. First of all, it is an idea of the purpose of upbringing as an important factor in the pedagogical activity that would promote the formation of a free, independent and responsible pupil, student personality in the study/study process (responsible, free in choice, independent and active acting). The goal is predicted and achieved in action. (Špona, 2018:18).

The main requirement for goal achievement is the active participation of scholars and students in the choice of study content and forms. Participation in the course learning activities becomes the main means of upbringing in the process of formation of a free, independent and responsible personality (Špona, 2018:19).

The Latvian intergenerational collaborative research attempt to redefine human competences by connecting with the process of self-transformation. Communication and collaborative competences are closely related to one's reconstruction of the self as a collaborative researcher.

The scientific, social and practical impact of our intergenerational collaboration is evident through the fact, that Latvia was selected in 2016-2019 Horizon 2020 project as good practice to validate the informal learning of young adults and implementing and directed (2007 -2016) master's degree programme on Educational Treatment of Diversity, which was selected by the Directorate-General for Education, Youth, Sport and Culture (European Commission) as one of the 15 best European cases on preparing the teachers for diversity in 2017 and included in the EU School Gate directory (EC, 2017).

The sustainability of collaborative research with an excellent team of West-Timisoara university, led by prof. Dr. habil paed. Simona Sava is evident, not least through this paper contribution alongside many other joint activities inside and outside the Asia and Europe LLL Hub education and research official networking.

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The Reflective Dimension of Learning in Adulthood

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The field of adult education has undergone significant changes, both in terms of finality, content, and modalities. These changes have been generated, on the one hand, with the help of the findings made in adult research (for instance, with regard to the specificity of adult learning or the specific socio-cultural and professional behaviors of adult learners, their behavioral patterns being also formed by the set of values they hold, etc.) and, on the other hand, these changes have appeared due to the profound and unforeseeable transformations of our society, occurring at a fast pace.

The editors of the journal celebrating its 20th anniversary have invited to reflections on the evolution of education sciences for the past 20 years at the national, European, and international levels. The adult education and lifelong learning and, in general, educational fields have experienced major changes of discourses, but, even more importantly, have produced significant developments. In adult education, these developments have generally responded to the increased expectations from adult education, as in our knowledge society and in our learning society, adults are expected not to be able to cope with all societal, professional, technological and other changes without being involved in continuous learning and constantly updating their knowledge. Thus, if we aim to increase the participation of adults in continuous learning (Sava, Nuisl, Lustrea, 2016), we need more structured information about the field of adult education, better monitoring of its latest developments and of the impact of services and provision in adult learning and education (ALE), more

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research to support better policy interventions and policy visions (Boeren 2019), and, finally, we need to advocate for the benefits of learning in adulthood (Sava, 2015).

Still at the national level, the authors of the article have managed to provide a substantial input in the scientific debate about ALE. Simona Sava, as a young scholar, had the opportunity to be coordinated by Professor Păun from her BA paper up until the defense of her PhD thesis. If for her BA thesis, the proposed title of "Trends and orientations in adult education" was chosen with a view to "checking the emerging field of adult education, quite poorly structured" (Păun), her further work, research and later developments have meant a significant contribution to ALE in Romania. Simona Sava has grounded her academic career in the field of adult education and she successfully set up a thriving research institute dedicated to adult education (The Romanian Institute for Adult Education – IREA), and managed to promote the Romanian research on adult education at the international level and to offer a better visibility and develop a more articulate discourse on adult education in Romania, advocating for the professionalization of the field (Sava 2012b). If the early collaboration between the first two generations of scholars represented by Emil Păun and Simona Sava resulted in a number of publications meant to give a general picture of the adult education in Romania (Păun , Sava, 2003), other more complex topics were further developed, such as the validation of competencies for adults, acquired in non-formal and informal learning contexts (Sava, Lupou, 2008).

The topic of identifying, (self)evaluating and recognizing the acquisition of learning and the relevant competencies acquired in all life contexts is one of the most important developments in the field of ALE in less than the last 20 years, which is a viable solution for stimulating and documenting learning taking place everywhere, but also for articulating different learning and career paths for personal growth (Sava, 2012a). The close cooperation between the two authors of this article working on this goal resulted in important findings about the validation process, adapted to professionals working in ALE. The output of this research cooperation, the handbook for validating the pedagogic competences of ALPs (Sava, Lupou, 2008), was highly appreciated at the European and the

international levels. It has been translated into eight foreign languages and has been nominated as best practice in several European reports and publications.

The topic of how to foster and make visible the learning of adults became the research focus of dedicated scholars in the field of adult education. In this way, they were able to find new explanations to how adults learn and to how they can be more motivated to learn (Dumitru, 2007), becoming more aware of their learning and of the learning benefits.

The adult age is no longer defined in opposition to childhood and adolescence, but as a continuum on the temporal line and also on the psycho-social and cultural axes. The adult is approached or, better said, should be approached from multiple perspectives, as a psycho-social subject, defined by his/ her citizenship, and experiencing the epistemic, cultural, and professional dimensions of life. Generally, adults are expected to be able to learn, be motivated to learn, find their own interest for personal development and well-being (Lustrea, AlGhazi, Predescu, 2018), and be able to recognize the benefits of lifelong learning (Sava, 2015), while searching for new ways to valorize them for personal, professional and social development. All these complex aspects have led to a widening of the field of adult education, while, at the same time, they have caused a lot of inaccuracies and difficulties in defining adult education and its limitations in a precise and rigorous manner. Accepted for a long time in the "royal" field of formal education, adult education is currently making considerable efforts to recover and capitalize on non-formal and informal resources existing in society with the view to transforming them into valuable tools of education. The validation of competencies is one of the solutions, as the whole self-reflective process emphasized in this article is a basic precondition for a deep and relevant validation process. However, the validation of competencies is only one solution for which the reflection process can be used, while our arguments and main points in this article support a systematic reality, for which we have revised some of the major scientific contributions to the understanding of the reflective process and reflective learning and of how to foster it. We believe that mastering self-reflecting learning can help individuals to cope with the accelerated societal changes, but it can also be a prerequisite

for sustainable development (Boeren, 2019), irrespective of the different trends affecting the discourses on the importance and scope of ALE.

During this time period of twenty years, it can be also noticed a dramatic shift in the educational discourse, from the dominant humanist and cultural discourse to the utilitarian-pragmatic one. The former focused on equalitarian and compensatory goals (achieving equality in educational opportunities for disadvantaged adults) and on cultural aims (e.g. the education for the cultural valorization of our free time for achieving personal development, which has lately disappeared). This type of discourse is marginalized or rather completely ignored today. The "invasion" of the utilitarian-pragmatic discourse centered on profession and training is a factual reality that should not be rejected in itself, but only from the perspective of some of its rather limiting results, such as marketization and taylorization, etc. Among other things, this development is criticized, because it only rarely allows the use of reflective practices in learning. The reflective dimension of education and of general learning processes in adulthood is not enough evident.

Reflexivity and reflective practice

Reflexivity is a polysemic term, sometimes with confusing meanings. The concepts of reflexivity and reflexive practice were first introduced by Schon in "The Reflective Practitioner" (1983). The theoretical premise of the analysis of reflexivity can be found in J. Dewey's conception, mentioned by Schon, among those who inspired him the most.

J. Dewey is one of the most prominent authors arguing for education as a reconstruction of experience. The central concept of Dewey's theory is that of experience, which he interprets in two different ways:

- the ontological meaning resulted from the interaction of the individual with the environment, assimilated as part of one's individual experience;
- the epistemological meaning, which involves a lot of thinking, reflection, the acquisition of new knowledge, and reconstruction.

The epistemological meaning mentioned above in relation to experience enabled Dewey to formulate his concept of "reflective thinking," developed later by Schon and his collaborators.

Education is a permanent process involving the reorganization and reconstruction of experience, which means that each current experience contains some of the previous lived experience, influencing therefore the quality of subsequent experiences. This is a process of "reconstructive transaction" that underpins the success of our actions in everyday life. But not every experience has an educational potential: "the central issue of an experience-based education is to choose the nature of experiences that can be a fertile and creative ground for later experiences," says Dewey (apud, Thievenez, 2017, p. 42).

The questioning of our adult experience is an important source of training and personal development. Recent research highlights that, in order for experience to be a significant source of training, it must provoke *l'etonnement* and incite the learner to embark on a process of personal questioning and answering. The role of trainers is that of identifying and/ or creating situations with a potential for "l'etonnement" (Thievenez, 2017, p. 42-43).

As a response to the sequential and rational and practice-based model of adult education, Schon developed the alternative model of the "reflexive practitioner" and reflexive supervision. Thus, he distinguishes between reflection-in-action (which means thinking ahead, analyzing, experiencing, and responding critically to the existing situations) and reflection-on-action, which is defined as "thinking through experiences, discussing, and engaging in reflective conversations" (Schon, 1983). For this, we need well-prepared tutors, mentors, trainers, who are able to systematically engage learners in stimulating discussions. But, current organizations, dominated by utilitarianism and focused only on achieving success, are less concerned with those reflexive processes focused on understanding, reflection, exploration, as Schon points out. In this way, Schon laid the foundation for the reflexivity theory, which he considers to be a cognitive activity, based on an epistemological scheme.

In very simple terms, "reflexivity is the ability to analyze one's own professional practices in order to transform them" (Păun, 2017, p. 187). The

reflective activity is a dialectic process in which there is an overlap between thought and action, between theory and practice, and it is a practice generating change. The articulation of theory and practice and the correspondence between the learning content and its practical application are essential aspects of reflective training practices. It is not important to acquire more knowledge but rather to filter it through deep processes of reflection. Reflexivity is an activity of analyzing your own practice in order to optimize it. This requires us to consider how practice is not only the place of application of theory, but it also receives a heuristic role, becoming a source of theoretical knowledge and practical realization. The critical-reflective questioning of practice and experience helps us to prevent them from becoming only normative sources, routine practices that are barriers to reflective thinking, a "reflexive mental state" (Senge, et al., 2016, p93). The heuristic and creative use of experience is one of the essential features of reflexivity.

Reflexivity implies, among other things, the critical analysis of one's own practices and actions, of the implicit values underlying them, and of the personal, social, institutional, and polemical contexts in which they are realized. This is all done from the perspective of the transformation of our practices and their improvement. The critical aspect of reflexivity does not only concern the solving of the problem but formulating it first. In reflective learning practices, solutions need not be borrowed from other places, but they must be explored beforehand. It is not only the solution that is important but also the path (or ways) chosen for dealing with that particular solution. In this way, reflexivity can become "reflexive expertise".

Reflexivity is not only limited to the rational part of an activity, but it extends to the emotional and artistic areas of practice, and also to the ethical understanding of our actions. In this case, reflexivity implies the analysis of the ethical justifications of our actions, a highly necessary analysis today when the mercantile spirit of neoliberalism is penetrating the educational space. An ethics of adult training is needed. The reflective dimension in adult education promotes a set of values, such as autonomy, collaboration, critical and constructive spirit, and many others. Autonomy means "apprendering to

pretend en charge" and is a standard criterion for personal development (Fritsch, 1971, p. 79). Collaboration is also a distinctive characteristic of adult behavior, whether during their training periods or in their day-to-day activities.

An important role in the introduction of reflective practices to the adult learner is played by reflexive trainers and practitioners. Therefore, the adult learning professionals (ALPs) themselves need to master such a reflexive competence. This is a highly necessary role they must play in our segregated societies, torn apart by radicalization, mistrust, migration and extremely complex situations difficult to cope with (Nuissl, Sava, 2018). First, the reflective ALPs should reflect on their own values, preferences, prejudices, biases, while approaching different topics, or when interacting with their adult students. The reflexive practitioner is what Descartes called "an open-minded practitioner," whose doubts determined him to avoid the canons of thought. If for the expert trainer, the source of his actions is the certainty, for the reflexive trainer, the source is mainly uncertainty and doubt (see also Beckers, 2007, p.275).

In principle, we must maintain a balance between the expert trainer (focused on the task to be performed, the learning content and the best methods of action) and the reflective one (centered on the psycho-social and personal processes of the adult learner). The Reflective Trainer or Practitioner is a facilitator who implements strategies of reflective support and assistance, including the emotional support, who helps the adult to solve the problems they face and to reflect retrospectively and prospectively. From the perspective of reflexivity, the relationship between the trainer and the adult must rely on socratic and heuristic methods, which can challenge the adult learner, offer him/ her guidance and encouragement.

The biographical approach-a way of stimulating reflexivity

There are many ways to develop reflexivity: the reflective journal, the reflexive portfolio, the reflexive conversation, reflexive surveillance, reflexive self-evaluation, etc.

In this article, we will discuss one of the least used methods, even if it has a high reflexivity potential. This is the biographical approach, which is a reflection process that the adult goes through while reflecting on different moments in his/her life. It is what we commonly call the "life histories" of individuals. In the educational field, the biographical approach allows adults to discover themselves (an opportunity for their identity reconstruction) and to better understand its formative role. In the interpretation that the adult gives to his/her educational path, s/he develops a way of reflecting on the significance of this process for his/her evolution. This is a first step into the validation process, the most significant and demanding one for the adult (Sava, 2012a). In this way, the adult carries out a process of self-discovery that allows him or her to question their previous reflexive experiences and later transform them into new life experiences. To conclude, the biographical approach is a process of "reconfiguring the history of one's life," called by Mezirow "a transformational perspective" (Dominice, 2001, p. 287).

The biographical approach allows us to support adults to select a set of significant learning experiences from their formative course of actions, experiences that are known to be their educational biography. Educational biography (as life history) is represented by a set of educational experiences (related to one's family, school, profession) that highlight the dynamics of the training process as a "hermeneutical space of educational action" (Dominice, 2001, p.282). Educational biography is, in a sense, a confirmation of Dewey's conception of education as a reconstruction of experience, because it manages to direct the reflections of the adult learner within the space of their social evolution. "The processes that relate to the educational trajectory of an adult are not restricted only to the formally established spaces of education (schools, universities, professional traineeships and continuous training seminars" ... "these processes develop in a long time and in multiple social and private spaces", which allow us to overcome the "formal educational reality" (Baudouin, 2001, p281-282).

We conclude by saying that reflexivity helps us reconsider the adult learner as an individual and social subject and go back to the moment when the adult

emerged in the social field, just after R. Barthes's proclamation of "the death of the subject." This can be the starting point for a critical, open and reflexive society.

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Research Methodology in Adult Learning and Education

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Abstract

Consent in the definition of adult education is only apparent and circumscribed. Substantial differences survive, fueled by various national ideologies, cultures and policies. The plurality of angles determines a multiplicity of research approaches. Transformative research is the typical model of adult education research and is analysed in its core components. Its peculiarity is the property of ensuring immediate production not only of knowledge, but of change processes. This property has favoured proliferation especially outside the academic community of education sciences. The process was guided by the users of the research, i.e. by those who have roles and resources that enable them to orientate the research in response to personal and organisational needs. This phenomenon necessarily produces a process of social construction of the meaning and the methodological content of the research. This expansion urges the development of a transformative research that also attributes to the education proletariat the role of inspiration and guidance in adult education.

The object of research in adult education

Research in adult education has its own specificity that varies according to research goals. We may have researches that primarily aim at exercising forms of control over on-going educational processes, or interested in understanding and interpreting educational phenomena, or ultimately in modifying the educational conditions of the population. These three options involve not only a different conception of how to do research. They are also based on different definitions of the subject of study: adult education.

Their identification can be made taking into account both the major traditions of second logic research and the representations of the object identifiable in the research. On this basis, we can distinguish between three different approaches:

- the institutional and organisational definition, both public and private
- the phenomenal definition, which is concerned with the study of educational behaviours in adulthood
- the transformative definition, designed to highlight the meaning, the reason for being, the social function of adult education.

The *institutional definition* orients the researcher's observation towards the historical forms in which the adult education system of a country or organisation

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has materialised. It is therefore exposed to constant changes in the policies of governments in office. It is the result of complex historical processes of economic, social and political negotiation and is constantly exposed to changes and reforms, not necessarily improving. The reading and comparability of institutionalised adult education has been supported and influenced by the introduction of international education classification systems. Starting in 1958, UNESCO began to work systematically on the definition of ISCED-International Standards Classification on Education (Godin, 2005).

The *institutional definition* of adult education has the inherent limitation of restricting its point of view to products, systems, programmes generated by public policies, and private and non-private companies. It is, on the other hand, constantly exposed to changing the equilibrium of educational power and therefore exposed to evolutionary/involutive dynamics dictated by the desires of power and its evaluations of opportunities rather than rationality. As Rubenson remembers: "The Bourdieusian perspective suggests that the evolving configuration of adult education research is directly impacted by changes to the internal structures of the field as such as well as by changes to the social context of the field, such as the social and economic role awarded to adult learning and education by the policy community" (Rubenson, 2015: 126). The dependence of the institutional dimension on the dynamics of power is made even more evident by the main function of the policies and systems of organisations: to determine *what's up to who*. We refer to the distribution function. It is not enough to point out the "social and economic role given to adult learning" as the problem of distributive justice arises the moment that this happens: what opportunities for which people. The arbitrariness of educational powers has a positive or negative influence on the institutional definition of adult education.

However, the importance of the public and private policy-making distributive function makes sense of the reason that drives part of the research world to focus mainly on this dimension of adult education. Systemic and organisational architectures, management and control of their dynamics, determination of policy measures and anticipation of the effects of the changes introduced are the focus of this first approach.

The *phenomenal definition* of adult education orientates the researcher's observation towards the educational processes that act in the everyday life of individuals. It is therefore focused on the description and study of the different types of educational actions and the transactions between the subject and the environment through which new knowledge is produced. This definition has had the merit of urging the researcher into studying experience as a source of learning and recognising and considering the difference between formal education, non formal education and informal education. This has consented the theory and the search to attribute meaning and educational functions not only to training systems but also to educational processes that act in daily life and work. Moreover, the phenomenal definition has prompted research to understand and generate the many training devices, the mechanisms through

which we can intentionally structure the educational actions that determine the value and meaning of the experience itself. All this not only in classrooms, but in workplaces, in cultural institutions, in the family, in cultural and non-cultural consumption.

Research developed in an institutional or phenomenal perspective has helped to understand what works in government institutions and the dynamics present in people's educational processes. However, the study of the efficiency and effectiveness of educational action and policies that generate it does not exhaust the field of adult education. There is more. This type of educational research bases its legitimacy on the difficult bet to produce rules, norms, truths once valid for all, transferable to any context. Educational research that limits its object to the study of the institutional dimension or the peculiarities of educational action can only show what has been possible in certain situations, it can reveal the probable connections between certain actions and their consequences. It is not able to guide educational action in the tortuous meanders of history, though it helps to be more informed.

The *transformative definition* of adult education reveals the meaning, its reason for being, its function. It is based on a universalistic perspective, identifying in the changing educational conditions of all its own reason of being. At the same time, it roots its own nature and its historical origins in social practice and conscious educational action "not born on the heads of people, but among people, for people, and with people" (De Sanctis, 1988:61).

From the universalist principle, it follows that the sense of research in adult education is directly related to its ability to reduce the rampant *education misery*. The growing disproportion between those who have the opportunity to acquire future-based skills and those who are not suited to the needs of contemporary economic and social life are evidenced by the results of PISA and PIAAC surveys (which limit their attention to a narrow circle of countries). Disparities are such that, despite the increase in the school population and the costs of training, the ancient skill mismatch and skill shortage phenomenon also accentuates itself in the face of globalisation of the labour market. The mercantilisation of adult education then increases the imbalances in access to formal and non-formal educational opportunities. All this is creating a modern *educational proletariat*, i.e. subjects forced to not learn what they would need to change their current and future living and working conditions. This is a subject still devoid of its own identity: can we call adult learners those who are on the margins of dynamic learning networks? Those who spent ten years and more of their lives in educational institutions from which they did not receive what they had been promised at the entrance? Words like students, participants appear sarcastic. This is a subject that, in addition to having no name, is incapable of organising itself to change its condition, for the management and the use of existing educational resources in society.

The sense of adult education and its research lies in its specificity of organised practice of people for a widespread growth in the awareness of on-going educational processes that induce mass miseducation and growing

educational deprivations (we do not refer to absolute poverty, but to relative poverty: the poor being defined as those who are deprived of the benefits of a modern education and training and therefore do not achieve the standards of skills approachable to the medium to high levels).

The transformative definition assumes the "emancipatory" paradigm perspective. Basil Bernstein has well summed up his perplexities about the possibility of practicing this model by affirming that

"Education cannot compensate for society"(1970). Bernstein's article was lacking in optimism rather than in scepticism. The problem posed by the role of education is exactly the opposite. The problem stems from the role that education plays in contemporary society, the selective and reproductive function that it carries out, and which - not by itself - is the source of the processes of creating the educational misery of our day. The assessments emerging from the European benchmarks on education, from OECD research on school and adult education show a substantial stagnation in the processes of social and educational inclusion. This does not depend solely on the imperfections of education systems and policies. There is no country in the world where the fundamental problems of educational deprivation are solved. No country has a model to export. It is not with policy transfer and with good practices that countries and organisations will improve the performance of education systems. The underlying problem arises from the model that inspires educational systems and policies that support them.

Bourdieu and Passeron explain the phenomenon with the theory of the arbitrariness of educational action: "All pedagogic action is, objectively, symbolic violence insofar as it is the imposition of a cultural arbitrary by an arbitrary power" and they add "pedagogic action seeks to reproduce the cultural arbitrary of the dominant or of the dominant classes"(1977: 5). The transformative approach to adult education identifies the sense of its own research in the emancipation of the deprived from the arbitrary will they are subjected to.

The Limits of Research on Adult Education

The different perspectives on adult education are translated into different approaches to research that, in this essay, we reduce to two: research on adult education and research in adult education.

We are well aware that with this simplification we leave in the background the reflection on the strengths and weaknesses of positivist and scientific tradition of research for educational research. Likewise, we do not enter directly into the merits of the strengths and weaknesses reflection for educational research of the alternative paradigm, the cluster of approaches that can loosely be termed interpretive, naturalistic, phenomenological, interactionist and ethnographic. Likewise, we keep in the background the reflection on the rise of critical theory as a paradigm in which educational research is conducted. In that regard, we would have little to add to what Louis Cohen, Lawrence Manion and

Keith Morrison (2007) have already written.

Research on adult education has as its main purpose the description and interpretation of phenomena and educational practices and their evaluation. It is animated essentially by the cognitive objectives of the objects studied, it aims at defining and measuring them in an attempt to predict and control educational dynamics, to understand and interpret them. The distinctive stretch of *research on adult education* consists of a double splitting:

- between the time of the research and the time of the use of its results and
- between the subjects of the research (the researcher and the subjects observed, studied).

The results of the *research on adult education* respond to an apparently abstract need for social dynamics and to the academic knowledge of the phenomenon and to the formulation of interpretations and norms. There is no simultaneity among research activity and actions of implementation of the knowledge that it has produced. Similarly, the researcher is placed in a different situation with respect to the actors of the phenomenon studied, they are observed, sometimes inducing them to adopt certain educational behaviours which is then interpreted and evaluated. The researcher is "other" with respect to the social actors in action research, in intervention-research, and participatory research. In fact, the active participation of social actors in the research path does not explicit the social and transformative sense. The main goal seems to be reduced to the methodological one: action, intervention, participation and not the kind of change that one wants to produce with the research.

The two splittings we referred to reveal a profound epistemological weakness. "Since observing means interacting, this precludes the strict validity of the principle of causality", at least in its deterministic interpretation (Heisenberg, 1930). Research cannot avoid the objective limit that prevents the exact identification of the object under analysis. Therefore, it can only produce approximations and not certain data. In our case, we might add that the results produced do not have an educational relevance since research is far from the dynamics it has just observed. For this it may be naive to attribute to the results of *research on adult education* the ability to describe, interpret and predict every aspect of reality.

The difficulty that *research on adult education* has is when the study objects are observed and measured, is that it is unlikely that the researcher succeeds, alone, in tracing back to the causes of the people's educational behaviour, identifying the deep reasons for the educational dynamics of people, understanding the tension between agency - individual choices and intentions - and structure - the contexts and their arbitrary and constructive devices.

Similar are the risks of *research on adult education* when it isolates the subject from the context and considers individuals as constructors of their own actions and isolates it in the world of subjective meanings. The danger of this approach comes from the prevalence of an essentially qualitative method and a micro-pedagogical perspective. Even in this case one forgets "the power of

external - structural - forces to shape behaviour and events. There is a risk in interpretive approaches that they become hermetically sealed from the world outside the participants' theater of activity - they put artificial boundaries around subjects' behaviour" (Cohen, L., Manion, L., Morrison, K., 2007: 26).

The principle of indetermination introduced by quantum physics results in a drastic re-evaluation of subjectivity in both natural and social investigation. Such a change, far from rejecting any scientific claim, proposes a new way of dealing with adult education research that goes beyond the false contrast between quantitative and qualitative approaches.

The new way originates both from the consideration of the dynamics of power between agency and structure, and from the active role played by research in favour of their liberating development. In other words, adult education and its laws, far from being something objective, to be discovered, are rather constructed by the subject that observes them, the researcher and his ability to position himself in relation to the tension between subjects and contexts.

Research (transformative) in Adult Education

Research in adult education corresponds to a type of approach that more explicitly than others goes beyond investigation of the cause-effect principle (the *causa efficiens*, or knowledge of the factor that produced a result), but also questions the End or Purpose (a change or movement's *causa finalis*, is that for the sake of which a thing is what it is: a seed has the eventual adult plant as its end). Our call to Aristotle's physics and the four forms of cause (*causa formalis*, *materialis*, *efficiens* and *finalis* object of the scientific inquiry goes through the filter of Heisenberg and his formulation of the principle of indetermination (Heisenberg, 1958). Explaining the *causa finalis* of adult education forces research and researcher to trace back to why adult education itself exists. This reason is not given once and for all, but it is constantly evolving and object of research. This is a problem that arises whenever research meets a new reality, new subjects, new problems (from research in a jail to that in a bank).

It has been written that research in adult education actually belongs to the current of critical pedagogy and it has been added that "the critical inclination typically comes from researchers identifying themselves with a social cause or movement that leads them to take on the role of spokespersons or judges who unveil the destructive disparity between the ideal and reality (...). Critical pedagogy could thus be expected to appeal to adult education scholars who come from the adult education field, bringing along a desire to conduct research that could help improve practice by focusing on issues of power." (Andreas Fejes and Erik Nylander, 2015: 117-118). These summary considerations do not take into account the specificity of the approach and therefore we consider it appropriate to outline the fundamental features.

Research in adult education is characterised by the special focus on three

dimensions of research:

- the explication of the *causa finalis* of the purpose
- attention to the effectiveness of research, i.e. to the changes made to the formal "cause", understood as a change caused by the arrangement, shape or appearance of the thing changing or moving
- the focus on the role of the subject that determines the process of carrying out the research

The purpose of research

The sense of research in adult education is the very reason why it exists: the reduction of *education misery*, i.e. supporting the growth processes of those who are today in the conditions of an educational proletariat, in which an increasingly *lean* formation is reserved. The educational misery of our days lies above all in the phenomena described by all the indicators relating to the inefficiencies of the school and university system, but also from the new and unbridgeable distances that open on various fields: mathematical, scientific, digital, skills that serve today to have a decent job and life, to those that will serve everyone in a few years, when we come out of the Industry 4.0 revolution and enter into Industry 5.0. Educational misery, moreover, and above all, takes into account the quality of informal, natural, unstructured educational processes that work within moments of consumption and daily working.

The definition of the meaning of adult education and research acts both ideologically and culturally. But the bottom line is the balance, the harmony that a principle of distributing equity of growth opportunities creates in society and in production. This balance is not entrusted to the frustrating expectation of total metamorphosis and the denunciation of how far we are from that goal. The principle of fairness is what makes sense to the progressive improvement of educational conditions in work, culture, structured education in the city. It does not diminish the general principles that make up the research framework. It becomes concrete in the identification of concrete and verifiable goals, even measurable, to the realisation of which the research activity is intended to contribute. The challenge of knowing the specific goal that research intends to achieve and its consistency with the *raison d'être* of adult education is the first feature of adult education research.

The effectiveness of research

Research in adult education before answering a need for knowledge arises from a need to transform the educational conditions of people. In this sense it is transformative. It does not respond to intellectual curiosity, but to the goals of improving the contexts of life and work and the subjects that live and work in them. It is part of the ways through which to reach the goal that makes sense to the research itself. Other ways will be the economic, organisational, health, urban planning dimension, etc.

Therefore, it is not abstract or disinterested, its value is related to the ability to produce the expected (or unexpected) changes to the present situation. Its

character, not merely descriptive, exposes its assessment of the added value that it has made. This is not in general terms. The basic criterion for evaluating the effectiveness of transformative research is to measure something like ROE-Return on Equity, or what would not have happened if there was no research input. Compared to the changes that have occurred, what is the added value of the research and what are the changes made by its contribution? This answer includes the evaluation of the meaning of the research carried out.

Transformative research is not a particular method. It is not identified either by qualitative research alone, nor with quantitative nor by other contrasts. It rests on the most appropriate methods and techniques with respect to the research objective. It does not dictate methodological requirements, but - in order to adapt an expression of Feyerabend to our argument - it tends to use "all ideas, all methods, and not just a small selection of them" (Feyerabend, 1975 :295). It does not present itself as "scientific methodology" that can be used to separate science from the rest. Transformative research constitutes a background view of which, inevitably, there are also normal beliefs, myths, religious visions, and so on. The set of these dimensions contributes to the development of its pathways and determines its results. For the same reasons, it is open to methodological pluralism. Transformative research is concerned with the interpretation and use of laws, rules, predictions produced by previous technical research on adult education (Cohen, Manion and Morrison, 2007: 227-228). It is also interested in the interpretative methodologies developed in the qualitative approaches. It is open to the use of the results of research methods that seek to clarify, understand and interpret the communications of 'speaking and acting subjects' (Habermas 1974: 8).

Yet it goes beyond the paradigms of adult education research. Transformative research moves from the interest for emancipation of the proletariat of education through reflective action. "The twin intentions of this interest are to expose the operation of power and to bring about social justice as domination and repression act to prevent the full existential realization of individual and social freedoms" (Habermas 1979: 14).

The transformer subject

A first consequence of the choice of an approach aimed at the dissolution of *submergeddeterminants* which prevent the development of mass intellectuality is the fact that in transformational research the problem of transferring research results is not the final phase of the research process. Adult education research is educational and therefore initiates processes of educational transformation while research is being conducted. It does not articulate at a time of knowledge followed by one for implementation of the results. Transformation processes associated with research are not limited to the classroom, to the dynamics of a specific training activity: a course, a seminar, etc. The transformation processes to be deployed concern the same reasons that created the need for training: the illiterate does not only pose a literacy problem that deserves an effective and efficient response, but the removal of causes, *submergeddeterminants* which

made him illiterate. The real and potential request for adult education, or worse the unexpressed one, is the product of limitations that prevent people from growing, their aspirations to change. In fact, the expression of a request for adult education is not the result of an uninterested aspiration, it is the index of the existence of the will to deal with a problem present in everyday life and work with educational tools. If the question is asked today, it means that in the contexts of life and work there have long been factors and conditions that have not allowed an anticipation of the educational response.

The transformation of these conditions, or of the natural lifelong learning, the *causa finalis* is underway: the purpose of research in adult education. Such transformations concern both the contexts and the subjects themselves that need to acquire awareness, responsibility and transformative capacity. The realisation of transformative research is based on the ability of the stakeholders to imagine, manage and control the tendency of scientific research processes of the ways in which change is made. This is why transformative research is not limited to the definition of the object and the evaluation of the results of the investigation, it also includes the social organisation of demand for knowledge and change, and the formulation of institutional, financial, and consequent training responses. The researcher does not climb the mountain alone. He shares with the real social actors the power to determine the goals and to manage the research results.

Research in adult education strengthens - presumably - the opportunities to attain the expected changes of the people engaged as it increases the levels of awareness of the management of the social practice in which it operates.

The matter of subjects involved in research and their educational powers is crucial to adult education. The answer, in fact, clarifies who has the power of research orientation, who gets the results, who can decide whether or not to process the process, who evaluates the results.

In hindsight, what we have here called research in adult education or transformative research is a relative novelty. Many policy makers, chairpersons and CEOs of modern companies, public and private executives establish close partnership relationships with the research world, determine desirable goals, methods, desirable transformation processes, evaluation models, and use of results. Through funding projects and programs, researchers are selected and attracted to work for the customers.

The main innovation of transformative research is the ability to structure the path as a program of concerted training actions that lead to the production of knowledge and personal changes and the expected context. The great challenge is to broaden the audience of the subjects who are allowed to use scientifically oriented transformational paths.

The fields of study

The analysis of the study fields faced by research helps to identify the problems faced by researchers engaged in adult education. In this regard we do

not go into the merits of the type of research - or into adult education. We limit ourselves to proposing a quick overview to understand its potential and limits.

Starting from the First International Conference on Adult Education (Elsinore, 1949), the researchers' interest in expressing the need for access to scientific production has been progressively manifested in the knowledge and sharing of the common heritage of studies and research. Some scholars have claimed at various times to propose their field classification, in line with their own conception, sometimes transcultural.

In those years where, adult education had not yet found its own stable space within the research centers, this task seemed difficult. The variety of cultures and experiences made it impossible for a serious work of interpretation and classification in a transnational perspective.

Although limited to only English-language production, it is certainly worth recalling the institution, in 1964, by ERIC- "Educational Research Information Center, which in the 1959 "Feasibility Study" was designed as a service that "embraces all educational research and research in other disciplines that have implications for educational theory and practice". International organisations have made an important contribution to the demand for access to research for the production of different cultures and traditions. UNESCO, through the ECLE-European Centre for Leisure and Education, was the first to make an outstanding work. In 1977 ECLE started publishing 22 monographs on the organisation and structure of adult education in European countries accompanied by the publication in 1983 of a manual titled "Adult Education in Europe. Methodological Framework for Comparative Studies " (Maydl, 1983). The Monographs often contain the reconstruction of research and adult education developments during the 20th century. In 1994, the UIE-Unesco Institute for Education launched a study to reconstruct the world-wide research landscape (Mauch, 1999).

The results of the two studies agree in providing a highly differentiated framework depending on the cultures of national authors and national policies.

What emerges in particular from the Mauch study is the prevalence of adult education that looks mainly at the inside, which is observed through its publications and its topics such as: quality of learning, global history of adult education, education systems, cultural approaches to adult learning, "New partnerships" with government business, NGOs, civil society development, curriculum development, media and information systems, models for capacity building, theoretical frameworks of adult education and learning (Paul Bélanger, Madeleine Blais, 1999: 276-277).

By way of example, we show below the research classification pattern adopted in the same study for Canada (L'institut canadien d'éducation des adultes, 1999: 188-234):

- *Occupational Training in the Classroom and on the Workplace* (Relations between Training and Work, Training and Qualification On-the-Job Training Policy, Policy on Vocational Training for Adults)
- *Literacy* (Literacy in Relationships with the Economy and the Workplace);

- Child and Adult Literacy Training; Action Research and Participatory Research; Linguistic and Cultural Aspects, Literacy in the Third World; Policy Analysis)
- *Educational Intervention with Adults* (Adult Learning, Styles of Learning, Feminist Perspectives in Adult Education, Adult Education and Aboriginal Peoples)
 - *Prior Learning and Skills Assessment*
 - *Popular Education and Grass-Roots Democracy*
 - *Distance Learning and the Educational Mission of the Media*

The panorama that emerges is significant but limited to what the workplace world did in years that still dominated the third industrial revolution and in which the dematerialisation of production, the global value chain and the management of the human factor had not yet entered into the strategies of all countries and businesses.

Systematic mapping exercises carried out 20 years later have adopted more advanced detection methods and technologies, but the results do not seem to be different. We refer to a study that has taken into account "the top-cited articles in three of the leading English-speaking adult education journals between the years 2005-2012 in order to examine whether and in what aspects the field is shaped as heterogeneous and pluralistic. Thus, our analysis aims to provide a description of the field based on what scholars have recognised as worthy to cite" (Fejes, A., Nylander, E. 2015:104). A similar study was proposed by Rubenson in order to "discuss the state of the map of the territory of adult education research. This work is based on a bibliometric analysis and a review of previous articles of a similar nature" (Rubenson, 2015:125).

The results of these studies show, as the authors say, the need to "renew this research field" (Fejes, A., Nylander, E., 2015:121): but in what sense?

The field of research has now exploded to the point that even bibliometric studies can not help us to reconstruct the map. Many studies of great interest and importance are now found in the research programs of medicine, work policies, business and non-business economics, engineering, the sciences of the organization, etc. Rubenson considers this phenomenon the result of a process of "fragmentation of adult education research" that "weakens the field" (Rubenson, 2015:134). In a more optimistic reading, one might say that it is rather a springtime proliferation process due to the fact that demand for research is so extensive that it draws interest and expertise from several areas. The ambiguity, if we want, is that the number of products and researchers involved in adult education research is growing, but that is not why there are professionals capable of transforming the educational conditions of the population and its emancipation. The scarcity of researchers in adult education comes from the fact that it is a complete figure that, in addition to knowing the methods of quantitative and qualitative research, also knows the methods of educational work.

At the same time, another feature of the field of research must also be referred to. It has always been dominated by research related mainly to adult

education policies and systems, even in cases where didactics were the object of research. As is well-known, the impact of public policies on the participation of people in adult education in the OECD countries is strongly minor. The rest is mainly covered by the education and consulting market that has its main financiers in public and private companies (Federighi, 2013:59). Within this territory, large global, national and local training and consulting companies are operating. The quality that distinguishes their research work is in many cases particularly high. Take for example one of the most well-known and most popular researches whose results have been continually improving since 1996. This is the case of the "Career Architect® Development Planner" volume, developed by Robert W. Eichinger and Michael M. Lombardo, probably one of the best and most systematic and extensive studies on building and developing the skills and competencies needed to enhance current job performance and to prepare for future career opportunities. It is a tool produced for individual learners working on their own development; for bosses and managers working on the development of someone who works with or for them, for coaches, mentors, and feedback givers helping others work on their development. The book, in its 900 pages, contains the results of a content analysis of many sources: the major and continuing studies at the Center for Creative Leadership, long-term studies at AT&T and Sears, studies by Harry Levinson, Daniel Levinson, John Kotter, John Gabarro, Eliot Jaques, James Kouzes and Barry Posner, Warren Bennis, Noel Tichy, and Bernard Bass's Handbook of Leadership-a compendium of empirical studies. We have reported this example as "positive" since it is research and authors that have never appeared in the various reviews but have had a great influence by managing researches that have affected millions of adult workers around the world.

Along with this, we remember a further, expanding, and training-related field supporting the generation of innovation processes (not just social) but of product, process, organisational and market. This is an area where other disciplines are trying to answer a growing demand expressed by the production world and by governments.

To handle this process of proliferation and fragmentation it is not enough to respond to the call of Feyerabend when we are invited not to be shy academic rodents who hide their insecurity behind a dark defensive status quo (Hoyningen-Huene, 2000). The real obstacle lies in the fact that much of the research and its results are *in usum serenissimi Delphini*, i.e. for those who can support it and decide on the use of the results, rarely the subject of scientific publications. This is despite the diffusion of the new distribution systems of research products and Open Source devices.

Concluding notes

In conclusion, we want to call attention to some points from which depends the type of development that research in the field of adult education needs to face.

Concentration in the use of results

There is a strong tendency towards social concentration in the use of educational research results. The added value that people derive from educational research is related to their ability to produce results before they translate into research products, in publications. Access to research is not intended solely in terms of reading products (perhaps executive reports are read). What matters is the ability to inspire goals, to orient the method, to apply solutions. The proliferation processes of educational research are mainly focused on tight bands of people and organisations that can determine their political and applicative goals as well as the choice of models, theories and basic concepts. If even quarks are the product of social engineering processes of science (Pickering: 1984), it is natural that they also act in the field of adult education. This increases the educational distances between the population, enhancing the knowledge, skills and competences of those who benefit from research results and are involved in the decision-making processes that concern them.

Transformative research helps to contain the process of increasing educational and social differences only if new public education is also allowed to access the processes of orientation and management of research itself. The attraction of human and material resources that makes this possible requires structural and financial solutions. A closer relationship between teaching and research in adult education, at least in higher education, could be a first step in this direction.

Access to products

Access to research products is a momentary problem that is plagued by the abundance created by the availability of accessible publications and databases online. However, it does not contain the rich type of product generated by research carried out in favour of structures and actors that direct choices, decisions and actions for private purposes. The products are the property of the customers or are covered by strict confidentiality constraints and kept out of the publishing product market. Only some products can be acquired by buying consulting or research services. The scientific interest in such products does not concern confidential information. The interest of the scientific community is due to the new knowledge gained in identifying the weight of the factors involved in training (e.g. the relationship between financialisation of an organisation and value attributed to human resources, or between international mobility of talents and retention training policies of adult workers), as well as advances in the refinement of methods, techniques and tools for educational research (from the use of art in educational research, the use of interviews, tools for training need analysis, self-assessment techniques).

Other disciplines have large global databases useful for benchmarking and in support of evaluations and choices to be made. This is the case of work psychology with production and continuous evolution of assessment tests or work policies by creating large comparative databases for retention policies. Adult education has not yet achieved these goals. We know that some scholars

are a bit reluctant to open themselves to the use of artificial intelligence. It is a shame that today it is the only chance to advance knowledge sharing quickly.

The digital divide not only affects some researchers, but the set of adult education participants. A European Parliament report on the accessibility of OER-Open Educational Resources for adult education concludes that: "It is clear that OER can offer many benefits, including, longer term, the possibility of delivering education in a more effective fashion while keeping a close eye on cost. Most of the earlier EU-funded work on OER has focused on either the formal education sectors (universities and schools in particular) or the informal education of already well-educated students. It is timely to extend such work across all educational sectors, including the full spectrum of informal education, and across a wider age range "(Sero Consulting, 2015,11). Without a brave expansion of focus on sharing and open source, research has reduced sharing opportunities and the very teaching products are scarce.

Anticipating the future

Finally, our society and adult education have a great need for future and hope. Research can help build processes that help to anticipate and prepare to face and direct change in society, workplaces, and private life.

Studies of future demand for adult and continuing education are rare, although some examples show that the subject is meaningful. Let us take, for example, a recent CEPII update on the educational levels of the working-age population over the 1980-2050 period (Fouré, J., 2012). It shows that Europe in 2050 will move quite close to the secondary-school educational levels of the more advanced economies worldwide - though without catching up with them. As far as tertiary education is concerned, current efforts will only serve to maintain current levels of disadvantage.

These data have implications for policy in both tertiary education and adult and continuing education policy (which will be required to fill the gap). The stimulation of research in the sector could help to overcome the difficulty of producing appropriate methods for showing how the educational composition of the adult population changes as a result of specific school enrollment rates.

Forecasting studies are used for understanding the processes of developing human capital over the long-to-medium term. However, the short and medium term also needs to be taken into consideration" (Federighi, 2013).

This is a sector scarcely covered by research. It is important because it indicates the direction that public and private policies might take and because it addresses our capacity to reinvent the future.

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Pedagogy of Communication. Intersections

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Writing in an anniversary issue journal is an honor and therefore an endless courage. We know where honor comes from, we build it; the courage is ours in front of readers of this issue, but also of similar issues - many decades to come. The chosen theme doesn't represent such an advantage for us because it is also the fruit of a courageous act, with clear evidence that its thinking doesn't hold the same fully viable arguments now.

Soon, in a few months, next year, the idea of such an academic subject celebrates three decades and afterwards, next autumn, we also celebrate three decades for the first class² on this subject. The idea belongs to Professor George Văideanu, its materialization was entrusted to us, first by the writing task (Șoitu, 1994), then by assuming the elaboration of a doctoral thesis - a book (Șoitu, 1997, 2001).

Continuing the parallel between the anniversary issue of the journal and the Communication Pedagogy, we will say that one and the other have emerged in response to the needs, demands of the academic field together with the scientific and didactic community. The important thing was not to introduce a new discipline, but a necessary, compulsory one for students training and also a useful one beyond the initial studies.

The proof that this implied imperative is understood as such is brought about by the structuring of the "state of communication" - which did not seem to be so good - from the "guilty" for this situation and the hypothesis that communication itself can have its "pedagogy" in the great map of much comprehensive Pedagogy.

As I was saying, from the beginning, some initial goals were not reached, and the "state of communication" has since received new distances from the projections we had with our magister. Back then, we were looking for strategies, methods, tools to teach students "to say more than they say"!

It was the science of our teachers, unparalleled in the fascinating use of constructions of each sentence, the utterance of every word, syllable, rhythm and duration of silence, gesture, mimicry, posture, gaze, walking, sitting in the chair, clothes, tie of the person, which sent to its original meaning - mask!

We saw the man with his fundamental role - unaffected by the "dust" of times, labels or misunderstandings generated by political limitations. It's true, we were

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² It was the first course of communication - included in an educational plan, 1990/1991.

looking at the really brilliant ones, coming straight out of prisons and detention camps of those years. We wished to have their rigor, their monumentality of

every construction detail shown to our mind and soul. Meanwhile, things have changed, because unpredictable unknowns appeared. Now we're all talking, nobody listens! It has even appeared the "passive listening" alternative, because it is needed in order to have justification for the "active" one! The idea of active listening in itself induces the right for the other possibilities to exist. Listening is listening! What is heard in the background is noise, there is something that could accidentally draw attention, at some point. Now, we have, above all, the continuous buzz of which, sometimes, rarely, something draws attention!

Here's how the need to express more than it is said became the need to listen! The need to make ourselves the listened ones and to help those growing up learn how to do it! But we start beating ourselves up, we are already giving up hope that our words, gestures, glances or thought will be able to interrupt someone's speech for a moment of listening. We are talking all the time, all at once, louder and louder – it couldn't be otherwise - more screamingly to dominate, more carelessly, indifferent, disinterested in what others say, and even in what and how we say it!

Only the lovers were forgiven grammatical disagreements in favor of unitary feeling, now the speakers themselves justify their mistakes through the recognized disharmony of living.

The justification of careless speech brings the cancellation of speaker's interest for his own image and puts him, by his own choice, among anonymous speakers. In fact, who are we, those that no one is listening to? Who are they, those that we know they do not listen to us?

Was it the failure of pedagogy, of this area of communication, or was it a crossroad where our compasses have been stuck or damaged! In this case, we are left with only the old instruments, those before these which became useless. History offers plenty of examples in which the way that had been proven to be good has become impractical for a while precisely because we were too sure of it and we were not paying attention to the signs that have been shown to us.

In sustaining a Phd thesis I was saying that the author will work in 2050 too, drawing attention that many will do in her fresh started career! What I was saying at that time was the thought that nobody could talk about how the students were learning and working at that time, and especially how the Phd thesis would look like that year! We were used to the idea that we have warned the audience about the unexpected, unpredictable evolution of our former student - considered to be too daring.

Then I remembered the writing of my first Phd. thesis with an army of typists who, being out of university, were marveled at how I could dictate words like sense, meaning, and semasiology when they knew others, concrete, palpable.

Meanwhile, some high rated machines with independent memory have emerged - my second Phd thesis benefited from disc computer support, other

than future diskettes! Correction was made for every word, letter, syllable - no need to modify the whole page! The professor to whom I owe my first Doctor

Degree would have been amazed by what happened only fifteen years later with the work written on that old-time machine.

How will it be written - if there will still be such an operation, if it will still be called the same - in 15, 25, 30, 50 years to come? Who, what tools will complete this work? The typist disappeared, and the author became a bit lazy - he already has a dictaphone! A good-humored university teacher³ said it would have been better if the school taught us only reading skills. Many enormities would not have seen the print! Will the time come when writing - more and more disastrous - will not be learned at all?!

Probably writing will be made by technologies that await recognition. You also need a plagiarism software, called "similarity" - sitting on each computer or whatever will it be at that time - able to erase or refuse everything from the start if it is not worth it! Such an extensive erasure program for all new and old media could free us from paper and / or electronic scraps. If it also adds one against logical aberrations and false information, then all recent disasters will be eliminated.

There already is a sense of liberation, brought about by the areas where the true works, utterances of the consecrated authors will circulate lightly, unhindered, and in all their splendor. In the common space of communities, everyone will enjoy the text defended against the danger of assuming the work of another! Those consecrated by value and time will be joined by authors able to recognize what others have said and who can bring something extra. Of course, we all love Noica (1973), the one who said that no matter how much they would have been told about everything, everyone has a chance to tell the story otherwise, if it really is his own thought.

And yet, the generations to come will do it all with new technologies, because the authors of the great inventions are growing through them. They will give reality new appearances to, they will give meaning to life and being itself. Of course, we recognize the expressions, our childhood dreams disturbed by the "duty to subjugate nature", to build the reeducated "new man", who for a while, has been called for new education programs. But do we know that man is renewing himself, if he makes the option of perfection of what was given to him!? Do we always keep alive the consciousness that Being is one, that our purpose is to recognize and follow the meaning shown by the Man among men? When this is what we accept, when this is how we think, how we feel and what we want, then we have communion, then we will know where the mark of our being is placed. The need for renewal is for everyone, the joy of accomplishment is common! We reach it all when we all come to communicate with each other, in tandem with each other.

³Titus Raveica, 1935-2013, professor of philosophy history at "Al. I. Cuza" Iasi.

One day⁴, fifteen years ago, a group of students presented themselves in a movie, standing in front of the computer, able to talk about anything through the posts they were sending.

In the park, another colleague was experiencing the joy of meeting with a beautiful female presence. It was useless to share the strong emotion, for his friends preferred to talk about it only on chat, lacking the enthusiasm given by the stunning appearance of the cheered. Their emotion took the form of "emoticons," of standardized drawings⁵.

I have been Surprised for a long time when, at Rene Berger (1978), I discovered the emphasis on the role of photography – it was considered by the parents themselves as being more important than the real image of the child. Adults were permanently accompanied by children's photos - along with pocket money, credit cards - it is still rare to directly put the child in the group of friends⁶, even grandparents, appreciating the image captured on a piece of paper as enough. The evolution was on its way from paper to film, from film to digital with increased possibilities. The wallet has disappeared into the smart phone - much more full of all, more spacious than any rich home.

The transition to Second Life took place almost naturally. If everyone can have anyone's picture anywhere with him, then why don't we endorse any look, why don't we resort to *avatars*⁷, having the maximum freedom to opt for the picture of an animal, a bird, a plant or any combination of all existing / imagined things.

(Dimitrie Cantemir's camouflage⁸ would have been an innocent construction in relation to what can now be designed and accepted!). Second Life has got newspapers, television and a fashion magazine of a world that respects its three-dimensional virtuality. A virtual world, built on desires, one-minute fantasies of the a being that escapes people in order to relate to its own fantasies, abandons itself in this process of alienation from which we do not know how it will come out. It is the intersection in which people disappear. Will we remember who we are, what have we been?!

⁴2003, România, Agigea, European Summer Academy, Metamorphosis - after the title of Ovidiu's poem.

⁵ It was the film in front of which we remembered that in *Pateric*, the end of the world is being uttered in a completely different form: *it will come when grass grows in the paths that connect the houses of neighbors!* They will not seek each other, they will no longer enjoy the face-to-face view! At that moment, the world will no longer exist, there will be individuals and their PCs!

⁶It is the surefirst beginning of the separation between parents and children, making it necessary to leave the world of children for their free manifestation. At a later stage of *Second Life*, adult access is denied in children's places. Besides, this rule is no longer needed because the parents themselves have given up on being there!

⁷ Avatar - the name given by the Hindus to successive reincarnations: transformation, unforeseen metamorphosis in the evolution of a being.

⁸ Dimitrie Cantemir, 1983, Hieroglyphics History, Publishing House, Minerva, Bucharest.

Avoiding comments on this totally foreign field to the mature generation, we will return to the avatar of companies which are capable and interested on virtual space as much, or perhaps even more, than on real one. The reason is simple: from an economic perspective, it is best to first give ideas / projects to for future beneficiaries to analyze rather than investing and only later finally find out what they would have liked. This explains why there are firstly virtual projects, being brought later into reality, why don't companies abandon the simultaneous performance of some actions with economic effect in the two spaces, why the virtual itself is profit-making - after everybody finds the advantages.

Certainly, if we forget that, at the same time as Rene Berger's invoked work, Alvin Tofler's Third Wave came to light, warning us that in the post-industrial society there will be some of the industrial society's organizational structure - everybody has a boss! - the difference being that everybody can also become a boss for others! The translation of the idea is more and more evident at this time, as it is noticed that the new function can be held by someone in relation to strangers. Each of us can follow, execute orders, suggestions, recommendations, and even report on what he has understood and realized to people he has never met, about which he doesn't know if they really exist or not.

Although at that time he has no knowledge of this human being's universe of manifestation, Tofler (1973) is important precisely through this intuition of future developmental trends in which everybody will consider himself a boss. If the author had no reason to be frightened at the idea that any "toy" could become his boss - because it was not possible yet - things are different today. The new boss can be born overnight from a nonexistent motivation until then, from a bet of anyone able to invest in the concentration of some minds ready to check their own potential. The status of boss no longer requires any remarkable training or distinctive authority⁹. How is the responsibility of the new boss acquired? What is this responsibility¹⁰?

The cry of the artists, who say things that we are left unnoticed or let pass by, accompanied what seemed a science fiction story. The playwright Victor Ion Popa¹¹ discovered in the writing machine an instrument through which people will no longer address only one person. The saddest and most profound

⁹It is more and more striking the question of what school can do, as long as we are witnessing a generalization of *credentials* by function, starting from the premise that every boss is following the coordinates of predefined, ready-made programs?

¹⁰ On the day of the first landing on the moon, - writes George Văideanu - a telegram was sent from UNESCO to NASA, conveying a congratulatory message accompanied by the call:

pay attention to education, to the effects of the manner in which this achievement will be presented. It is important to know who can travel through spaces reserved, not long ago, only to God! If we launch the idea of the right with no rules, then no one will guarantee for what follows in terms of behaviors and attitudes!

¹¹Victor Ion Popa, 1938, *Tache, Ianche and Cadâr* - a play offered by the National Theater.

sequence of his play is when the two parents proud of the beautiful letters of their children, each believing that only his own child can have so much sensitivity, just then, confronting the two documents, discovering that they were identical, indigo!

Their suffering is great, understanding at that moment that the message of the author does not contain the strictly personalized element starting from a certain child to his father, but a general one, valid for each father. In the same way, the messages sent now to almost unlimited groups have eliminated the very expectation of being written only for us: parent, lover, friend. With indigo letters, with messages to groups, no girlfriend, no father, no mom or boyfriend are anymore in the play of the brilliant playwright.

There, the girl accepts to give up a part of her father, the two fathers find out that they are not what they used to be. Will we still know what we used to be to crave for something eternally ours?

Orson Wels¹², horrified by what Hitler's radio could do - the one who, at that time, built himself the political image of a character capable of manipulating the present and / or absent crowds - performs the radio script, transmitted on October 31, 1938. But the message is not understood - despite the great disasters caused among listeners unable to discern between real and fiction. That new instrument, the radio, continued to be used in everyone's propaganda. Television, in turn, will test its effects in 1989 when it will help Europe to change its political structure and, for some, the borders. Without the presence of the television, prepared to broadcast, directly from anywhere, images throughout the world, it would not have been possible the demolition the Berlin Wall, the Revolutions in Romania and elsewhere, the recent history of Yugoslavia, the Middle East.

For some good years, we still have a cry: the movie *Avatar*¹³. This may be another desperate call of man in his running away from world. The new technologies allowed this alarm signal to be built. Psychologists have found a deep state of depression for most of the spectators after watching this moovie, even if not explanation could be offered!

The movie shows, on the one hand, what man is capable of destroying and, on the other hand, how good another world can be, an unpredictable one, built from the imagination of some beings endowed with feelings and reactions that we have lost.

Human creation has been shown to be in the image and likeness of the Creator - establishing the obligation of not accepting another past or future form for this image! Once established this axiom, we have to solve the problem with the likeness! The answer is one: likeness is acquired with much and constant zeal! Thus, perfection is given to man, it is reserved for any of those who will not

¹²*The War of the Worlds* radio script, which later became the movie *The Night that shook America*.

¹³*Avatar* is James Cameron's first film for the big screen and the most lucrative after *Titanic*.

be overwhelmed by despair brought about by the rush of a limited time. Of course, abandoning the image, we can forget and definitively give up the need for resemblance! After changing the image, anyone can want anything, without justifying their behavior, without confessing, to themselves or to similar others, the option. If we do not want to relate to the others who look like us, we will easily forget about our origin and who do we look for.

Constantin Noica¹⁴, at the time of his lectures in the country, at our university, was asked about how can his faith in man's purpose can be so strong when there are enough warnings about the imminent end of the world? Beyond any controversy, the philosopher discovers the generous pride of the generations who, in such a situation, of the last survivors, could say: yes, we have lived like human beings! The unwanted end is of human beings! He didn't accept our abandonment.

The author of a short film - still SF - presents the struggle and disobedience of a smart robot capable of having his own will in his desire to have a human child.

The robot had understood that only man could have immortality, never a machine, no matter how perfect. But we want the momentum of the robot.

We build closed, standard systems, we reject long lengths of time in favor of the moment we serve unconditionally. We speak of maximum efficiency with minimal effort, of results in figures, of obsessive reporting to objectives for "personal or group development", we care for each and forget them all! But we are all One, that is, Man! Only in him will we meet.

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¹⁴ In a conference in the 70's, in Aula Magna of "Alexandru Ioan Cuza" University of Iasi

Entrepreneurship education in Romania. Realities and perspectives in secondary and high school

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Abstract

The paper aims to analyze entrepreneurship education in Romania in terms of: concept, European educational policies in the field, actual status in the Romanian educational system and to advance proposals for improvement of entrepreneurial competences in Romanian education.

Thus, we will discuss the definition of entrepreneurship education, the most important European documents in the field and its benefits among students, as well as in society in general. We will present an analysis of the curricular documents in the Romanian secondary and high school education referring to entrepreneurship education in terms of status, competencies, contents and values, discuss the necessity of entrepreneurial education in Romanian schools and identify ways of improving entrepreneurial competencies.

Keywords: entrepreneurship education, educational system, entrepreneurial competence

Introduction

Since 2008, Europe has been affected by the most severe economic crisis in the last 50 years (for the first time in Europe, the number of unemployed has exceeded 25 million people), which is why it has become essential to stimulate Europe's entrepreneurial potential, remove existing barriers and revolutionize entrepreneurial culture in Europe in order to facilitate the creation of new businesses and a more stimulating environment for prosperity and entrepreneurship growth.

In the 2009, the EU Council document (Conclusions of the Council and of the Representatives of the Governments of the Member States, on developing the role of education in a fully-functioning knowledge triangle) proposed to promote a creative, innovative and entrepreneurial perspective among pupils, trainees, students, teachers and researchers, which would support the progressive development of a wider entrepreneurial culture through education and training, as well as a more dynamic European labor market and a highly skilled workforce.

Although there has been significant progress in entrepreneurship education in Europe, its level remains low, with the Nordic countries having the best results (Nordic Innovation Report 2012) due to the integration of entrepreneurship education within the national education strategies. The report European Union: an overview of policies and practice Results of thematic survey

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for the EU SME Envoys Network contains examples of good practice and challenges experienced by European states in the field of entrepreneurship education on different dimensions: the framework of entrepreneurship policies, partnerships, national curriculum and national qualifications framework, entrepreneurship education as an "eco-system" approach, monitoring and evaluation.

Statistics at European level indicate that Romania gives little importance to entrepreneurship education, so that less than 10% of those who have initiated and developed a business also have a theoretical basis in this respect compared to the European average of 30%. The employment rate of the population aged 20-64 in Romania (63.9% in 2013) is lower than the EU average (68.5% in 2012), with the national target being 70% by 2020.

The European Commission's Entrepreneurship 2020 Action Plan published in 2013, states the importance of the emphasis placed on developing transversal and entrepreneurial competences in order to improve the employability of young people.

Framework of analysis:

In this context, the objectives of our work are: to advance a broad, modern concept of entrepreneurship education and competences, connected with nowadays social needs; to analyze entrepreneurship education (in Romanian secondary and high school) in terms of status, competencies, contents and values and to advance proposals to improve the acquisition of entrepreneurial competences in the Romanian pre-university education.

In order to achieve the above objectives, we analyzed the national and European educational policy documents in the field of entrepreneurship education and secondary and high school curriculum from the perspective of the entrepreneurial education in terms of: content, competencies, values.

Entrepreneurship education - entrepreneurial competencies - entrepreneurial culture

The concept/term of entrepreneurship education is relatively new, frequently used in recent years in Romania, but especially at European level, with variable specificity and complexity. Since 2006, the European Commission has stressed that education and training should support the development of entrepreneurship through entrepreneurship education, entrepreneurship referring to an individual's ability to turn ideas into action. Most European educational policy documents define "entrepreneurship" as "initiative", "a person's ability to turn ideas into action", "creativity, innovation and risk taking", "the ability to prepare and manage projects in order to achieve the objectives". Entrepreneurship as a competence applies to all spheres of life because it allows citizens to personally develop, actively contribute to social development, enter the labor market as an employee or on their own, and

initiate or expand enterprises that may have a cultural, social or commercial ground.

The [Recommendation 2006/962/EC on key competences for lifelong learning](#) defines the **sense of initiative and entrepreneurship** as the ability to turn ideas into action through creativity, innovation and risk taking as well as the ability to plan and manage projects.

Entrepreneurial competence is one of the eight key competences established at European level and includes (ISE, European Key Competences) the following elements in terms of:

- **Knowledge:** identifying opportunities for personal, professional and/or business activities; broad understanding of economic activities, opportunities and challenges encountered by an employer or organization; awareness of the ethical position of enterprises and their beneficial force, honest exchanges and social activities.

- **Abilities:** proactive project management (planning, organizing, managing, delegating, analyzing, communicating, reviewing, evaluating,), effective representation and negotiation, the ability to work individually and in teams, the ability to assess and identify strengths and weaknesses, assessment and risk taking.

- **Attitudes:** initiative, proactivity, independence and innovation in personal, social and work life, motivation and determination to achieve the proposed goals, whether they are personal or established with others, including at work.

It is important to highlight and promote a broader acceptance of entrepreneurial competence, one that can apply to various contexts: education and training, work, personal life in general. According to the Danish Foundation for Entrepreneurship, "entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social" and, as a consequence entrepreneurship education refers to "content, methods and activities supporting the creation of knowledge, competencies and experiences that make it possible for students to initiate and participate in entrepreneurial value creating processes" (Moberg et al., 2012, p.14 in Lackéus, M., 2015).

Entrepreneurship can be an important element from the point of view of autonomy, personal development and youth welfare, and it is considered one of the available and promising solutions to combat youth unemployment. This is the reason why Europe should invest in entrepreneurship education and training, in creating an environment in which entrepreneurs can best realize their potential and develop, in communicating with specific groups, as well as in the visibility of entrepreneurs as models.

Nowadays we talk about "social entrepreneurship", "digital entrepreneurship" or even "green entrepreneurship".

Social entrepreneurship aims to provide innovative solutions to unsolved social problems. Therefore, it often goes hand in hand with social innovation processes, aimed at improving people's lives by promoting social change (OECD, 2010). Social entrepreneurship primarily aims at contributing to the common

social good, having the potential to attract young people and offer them the opportunity to bring innovative solutions to the current economic, social and environmental challenges. This concept of social entrepreneurship that is close to people and local communities can help counterbalance the major societal challenges that come from both the public and private sectors as well as from civil society and social economy organizations. The main objectives of social entrepreneurship are: to generate social value, to reduce poverty for as long as possible by creating new jobs for disadvantaged people, to increase the number of employed individuals and to sustainable economic development.

Digital entrepreneurship involves the use of new digital technologies (particularly social media, big data, mobile and cloud solutions), having as main purposes: to improve business operations, invent new business models, improve business intelligence or to engage with customers and stakeholders (Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G., 2016, p.20).

Green entrepreneurship has a positive effect on environment and can be seen as a move to a more sustainable future (Schaper, 2012).

A very effective tool for building entrepreneurship competences is the EntreComp model, designed by the European Commission, over a period of 18 months. The EntreComp framework was developed through a mixed-methods approach and proposes a shared definition of entrepreneurship as a competence in order to establish a bridge between the worlds of education and work.

The EntreComp conceptual model "is made up of two main dimensions: the 3 competence areas that directly mirror the definition of entrepreneurship as the ability to turn ideas into action that generate value for someone other than oneself; and the 15 competences that, together, make up the building blocks of the entrepreneurship as a competence for all citizens" (Bacigalupo, M., Kampylis, P., Punie, Y., Van den Brande, G., 2016, p.10). The 3 interrelated and interconnected competence areas are: "Ideas and opportunities", "Resources" and "Into action". The framework develops the 15 competences along an 8-level progression model and proposes a comprehensive list of 442 learning outcomes. The framework can be used as a basis for the development of curricula and learning activities fostering entrepreneurship as a competence and for the guidance of the efforts of teachers, policy makers, employers to develop and assess the competence of students, students, employees.

Currently, there is a Memorandum of Understanding for a European Curriculum for entrepreneurship Education under DOIT (Entrepreneurial skills for young social Innovators in an open digital world), a project under the program HORIZON 2020 Innovation Action, which aimed to propose a set of general approaches and actions that can contribute to the promotion of national and regional educational policies and practices through the DOIT concept.

Therefore, a radical change of European culture is needed towards a new concept of entrepreneurship in order to: publicly celebrate success in various fields, bring entrepreneurs to the forefront of European prosperity, present the advantages of an entrepreneurial career. Entrepreneurial culture means both the ability of the individual to accept and support the new, to assume the

responsibility of their own decisions and actions and the ability to identify opportunities for professional development and business.

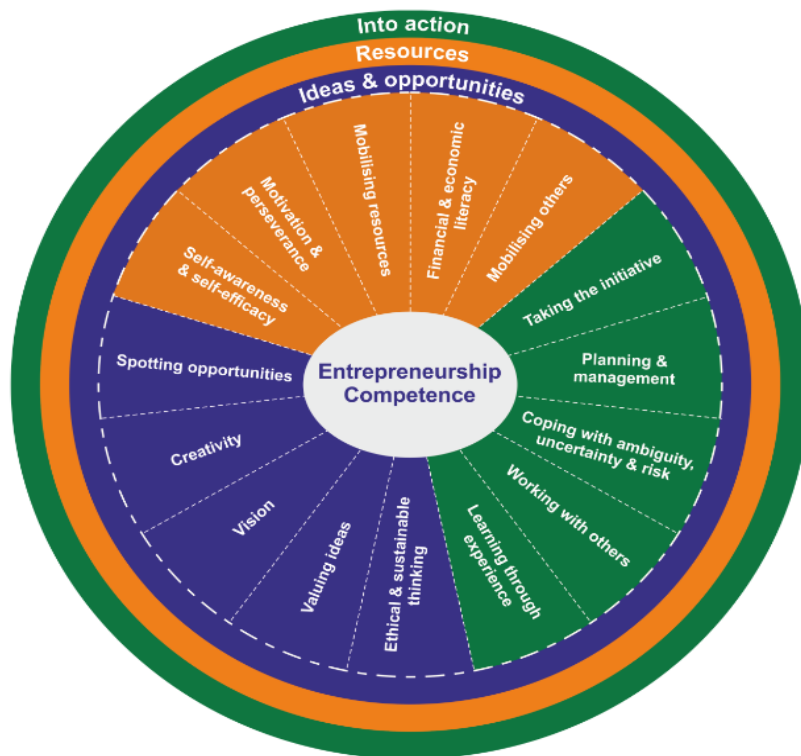


Figure 1: Areas and competences of EntreComp framework

Until recently, in Europe, we could not discuss about the existence of an entrepreneurial culture in education, in most European countries, entrepreneurship education being part of the curriculae only in secondary education. Recently, in the European countries, key and transversal (that can be transferred from one specific professional field to another) competences, such as entrepreneurship, are widely integrated into primary and secondary school curricula, because the European states are aware of their importance, considering that initial education and training must provide all young people with the means to develop their skills (up to a level that will prepare them for adult and professional life) in order to form a basis for future learning (<http://www.proiectdantes.eu/informative/index.php/competente-entrepreneurial-and-training>).

Entrepreneurial skills in Romanian secondary and high school education

In order to establish an accurate picture of entrepreneurship education in Romania, in terms of concept and status, we analyzed relevant national

curricular documents: all elementary, secondary and high school study plans and syllabuses from secondary and high school subjects.

After the analysis of all elementary, secondary and high school study plans we found that entrepreneurship education does not appear as a separate subject in the curriculum, either at primary or at secondary level, although it is the subject that might best contribute to the achievement of one of the eight key European competences: sense of initiative and entrepreneurship. Romanians pupils study entrepreneurship education only in the 10th grade, one hour per week.

After analyzing the study plans, we selected 20 syllabuses, having the potential of developing entrepreneurial competences, but, after a preliminary analysis, we decided to study 17 syllabuses in terms of: general and specific competences, contents and values and attitudes, as follows:

1. Entrepreneurship education, 10th grade, core curriculum
2. Civic education, for high school, elective curriculum
3. Civic culture, 5th grade, core curriculum
4. Counselling and personal development, secondary level, core curriculum
5. Applied economics, 12th grade, technological profile, direct/progressive professional qualification route
6. Civic culture, 6th grade, elective curriculum
7. Economics, 11th grade, core curriculum
8. Economic education, 5th grade, elective curriculum
9. Economic education, 6th grade, elective curriculum
10. Financial education, high school, elective curriculum
11. Financial education, secondary school, elective curriculum
12. Financial education, primary school, elective curriculum
13. Education for development, high school, elective curriculum
14. Project management, 11th grade, pedagogic profile, high school, elective curriculum
15. Animator instructor, trainer for extra-activities, high school, elective curriculum
16. Education for democracy, high school, elective curriculum
17. Social education, 8th grade, core curriculum

Results and discussions:

From the analysis of the above mentioned curricular documents, we believe that the following elements are worthy of discussions:

- Nine of the syllabuses have **the same set of general competencies, belonging to social sciences**: the use of specific social concepts in the organization of knowledge and explanation of facts, events, and real life processes; the application of specific social sciences information in solving problematic situations, as well as in analyzing the personal possibilities for development; cooperating with others in solving theoretical and practical problems within different groups; expressing

an active and responsible social behavior appropriate to a changing world; participation in decision-making and community problem solving;

- Difficulties in properly formulating the competences of the above-mentioned subjects (a problematic integration of knowledge, aptitudes and attitudes) can be frequently found;
- even in the case of subjects that approach specific contents of entrepreneurship education, the formulation/wording/statement of entrepreneurial competences is deficient and they are formulated in a technical manner;
- only four of the syllabuses are part of the core curriculum (Social Education, Counseling and Personal Development in secondary school and Entrepreneurship Education and Economics at High School), the others being part of elective subjects (school decision);
- the contents of these programs are diverse, from the development of pro-social behaviors, in the case of several subjects, to specific business and entrepreneurial information, with large applicability and utility in practice (Entrepreneurs and Businesses; Consumers and their rational behavior; Market-meeting of economic agents; Cost and profit; Production costs; The wage. Income and education; Money. Inflation; Unemployment; Needs and projects of individuals and families; What is a good entrepreneur; Famous business people; Business ideas, Profit;
- the main values promoted by the subjects approaching and facilitating entrepreneurship education are: economic rationality (Economics, Entrepreneurship Education, Applied Economics, Financial Education); entrepreneurial spirit (Economics, Entrepreneurship Education); economic efficiency (Entrepreneurship Education, Economics, Applied Economics); positive relationships with others (Civic Culture, Financial Education, Education for Development, Education for Democracy);
- entrepreneurship education, studied in high school, in the 10th grade at all profiles and specializations, one hour each week, has, according to the official curricular documents, the following competences: the use of specific entrepreneurship education concepts for organizing the knowledge and explaining facts, events, real life processes; application of entrepreneurial specific knowledge in market economy situations as well as in analyzing the possibilities of personal development; cooperation within different groups to solve theoretical and practical problems specific to the business environment; assessing the appropriate behavior of a changing economic and social environment; formulating opinions in order to solve community problems, on initiating and conducting business.
- Considering the above presented aspects, both in terms of educational policies and concret curricular documents, in our opinion, there are several ways to improve entrepreneurial competences in Romanian pre-

university education, which could be applied easily and without too many costs:

- updating, as soon as possible, the syllabuses approaching entrepreneurship education according to new scientific and pedagogic approaches in the field, both in terms of content, competences and methods;
- expanding the vision of entrepreneurship education and entrepreneurial competences by the dissemination of the EntreComp model, within an official, well organized approach;
- increasing the awareness among teachers and decision-makers of the importance of understanding what really entrepreneurship education means and how entrepreneurial competences can be easily and comprehensively achieved;
- integrating (partially or fully) the entrepreneurial competences from the EntreComp model into the set of competencies of other subjects that can successfully contribute to their achievement.

Analyzing the competences of the EntreComp model, we consider that all disciplines that are part of the actual Romanian curriculum could successfully contribute to their achievement. Furthermore, all these competencies have a positive impact on the entire development (academic, professional, social and personal) of young people, reasons why it is necessary to popularize this model that can dramatically change the perception of entrepreneurship education in Romanian schools and among teachers and principals.

Recent studies of the European Commission demonstrate the multiple impact of entrepreneurship education, and policy makers and educational leaders increasingly recognize how entrepreneurial attitudes and abilities can bring individual benefits (evolving professional ambitions, greater employability, improving entrepreneurial attitudes and abilities, the development of entrepreneurial intentions, the emergence of intentions to start a business in secondary education), institutional (developing a stronger entrepreneurial culture, greater involvement of teachers, intensifying engagement of stakeholders), economic growth generating a high return on investment) and social (prevention of social exclusion).

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Training future language teachers to educate the digital generation

Dana CRĂCIUN •

Abstract

For the students in today's secondary education, digital technology is part of their everyday life, which is why their generation has been named by researchers digital natives, Net-generation, Millennials, etc. These students access online information, generally based on visuals, play, communicate and collaborate in various virtual communities, they are involved in and expect immediate feedback / rewards. All these features could be valued in school as well. Thus, in the school environment, the infusion of technology should be sustained with adequate training of teachers / future teachers, especially for its effective integration into the teaching activity. In this respect, in the last years, various pedagogical models have been developed in the world, the two most well-known being the Technological Pedagogical and Content Knowledge Model (TPACK) and the Substitution-Augmentation-Modification-Redefinition Model (SAMR) to highlight and explain how technology supports and / or transforms teaching-learning-evaluation activities in the increasingly complex ecosystem of the class. In this paper, we present some of the trends in the integration of ICT in language learning, exemplifying learning activities based on ICT collaborative applications, proposed, realized and evaluated by the Faculty of Letters students, the field of Philology from UVT, within the offered teacher training program by the above-mentioned institution. Activities are analysed within TPACK and SAMR, identifying types of applications that are useful in language classes and concrete ways of integrating online and / or collaborative applications, especially using mobile technology.

Keywords: Preservice teacher training, ICT integration, Mobile assisted language learning (MALL), web 2.0 and 3.0 applications

1. Introduction

Technology development over the past half century has led to a transformation of language learning, both in formal and informal environments. This has resulted in a new domain, named **Computer Assisted Language Learning (CALL)**, an umbrella term for a multitude of processes and activities that use ICT for teaching and learning languages.

Historically, there are three periods of technology integration (Warschauer, 2004). In the first period (1960-1970), also known as structural / behavioural CALL, technology, especially audio, involves repetitive exercises, drills and practices, mainly designed to learn grammar rules or develop a vocabulary. The

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second period, termed communicative CALL (1970-2000), was characterized by the fact that students could effectively learn the language with the help of technology, using the language in various situations, watching videos with native speakers, being a period in which communication and interaction have become important aspects in learning (Farghaly, 1989).

The current approach, integrative CALL, is based on the development of Internet and hypermedia, in which one can develop speaking, listening, reading and writing skills, through video and audio streaming, interactive graphical content, virtual reality (VR) and augmented reality (AR) technologies (Hasan& Hoon, 2013). CALL resources, commonly used in the literature are specific, specialized programs, individual and / or collaborative online applications, videos, dictionaries, digital books, many in virtual libraries, online courses, etc. (Garrett, 2009).

Over the past two decades, collaborative Web 2.0 applications have changed the interaction and communication between teacher, information and student, and have transformed the student from a user into a content creator, giving him an active role in learning, which also led to a new conceptualization of teaching, learning and evaluation act. We are talking about 2.0 education, open access and socially constructed or 3.0 education, based on the omnipotent technology, generally mobile, with students being co-creators of learning experiences, online learning communities, etc.

There are various applications that can be used by students in class, from simple applications such as online dictionaries, bilingual applications or general web 2.0 collaborative applications to complex ones such as **FluentU** (<https://www.fluentu.com/>) based on subtitled videos in various languages, **Duolingo** (<https://ro.duolingo.com/>) based on gamification for language learning, **Memrise** (<https://www.memrise.com/>) or **Quizlet** (<https://quizlet.com/latest>) for vocabulary, **BBC Languages** (<http://www.bbc.co.uk/languages/>), etc. In order to integrate them into teaching activities, future language teachers need to have digital skills at least at an average level, and also to know the major groups of useful applications.

The ICT skills and the existence of the technology itself, do not guarantee the success of its use in learning activities. Hence, for an effective integration of mobile technology in language classes, preservice teachers should apply various models and frameworks, developed by researchers in order to also explain the pedagogical foundation of ICT-based activities. In this sense we note **TPACK** (Mishra & Koehler, 2006), **SAMR** (Puentedura, 2009), **Systematic ICT Integration Model** (Wang & Woo, 2007) and the new and practical **BUNZ model** (Bunz, 2017). In language classes, a blended learning environment (Graham, 2006) is increasingly used, especially in the flipped class approach, and informal and non-formal learning is valued, leading to new roles and pedagogical skills for language teachers.

Taking into account this infusion of technology in language learning and the various pedagogical approaches to technology-based learning, the question is how well prepared future language teachers are, i.e. the students at the West

University of Timisoara (WUT), to integrate ICT and manage effectively based on technology-based activities.

This study investigates how preservice language teachers, students in the academic year 2018-2019, of the Faculty of Letters from WUT, understood, used in pedagogical context and valorised the potential of various web 2.0 and 3.0.

In this context, we present trends in technology-enhanced language learning based on collaborative applications, as well as various pedagogical ICT integration models that can be used to implement and assess the pedagogical and technological competencies of language teachers.

2. Learning theories and mobile assisted language learning

In the past decade, due to the unprecedented development of mobile devices, ICT-based language learning has migrated to this technology and, thus, a new *Mobile Assisted Language Learning (MALL)* domain emerged (Chinnery, 2006).

The analysis of Kukulska-Hulme and Viberg (2018) shows that the use of mobile technology in language learning promotes social constructivism through various learning approaches (e.g. game-based learning, problem-solving, situated and contextual learning etc.). The authors assert that people can create new knowledge and meaning by combining things, ideas and activities they already know and believe in a manner of mutual interaction.

A mobile-based constructivist education can be achieved through the Mobile Assisted Language Learning apps, Mobile Response System apps, Web 2.0 tools, mobile portals, games and collaborative sites. Thus, students are connected online, being encouraged to create and distribute content, to openly express their ideas, to organize and to support their point of view, to communicate and to collaborate with others, and, as a result, they become aware of the coherent or inconsistent information from their own learning and can fill in the missing parts. From the point of view of social constructivism, it is important for students to benefit from feedback during the process of constructing their own knowledge.

The connectivist theory of learning emerged as a direct consequence of online collaboration. This theory describes learning as having a place distributed within a network, technologically enhanced, recognizing and interpreting patterns (Siemens, 2004, Downes 2007). As Downes (2007) points out, "connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks". As examples of applications used in MALL we can remember Social networks (Blogs, Wikipedia, Twitter, Youtube), Podcast, E-mail, Mobile Forums, Learning and Discussions Platforms (Edmodo) etc. Also, as a consequence of the connectivist theory, we can identify the development and evolution of Massive Open Online Courses (MOOC). We can list MOOC platforms that contain various language courses for language acquisitions, such as edX (<http://www.edx.org/>), FutureLearn (<https://www.futurelearn.com/>), Coursera (<https://www.coursera.org/>) or Udemy (<https://www.udemy.com/>).

In a broader synthesis, Keskin and Metcalf (2011) present also other learning theories in mobile learning (behaviorist, cognitivist, constructivist, lifelong learning, heutagogy, informal learning, etc.), emphasizing the link between these and information and content delivery mobile learning, context (social, location) dependent mobile learning, diversity of information sources in mobile learning, etc. The theories of learning previously described draw on what McLoughlin and Lee (2011) have called 'Pedagogy 2.0', a set of approaches and strategies that support learning patterns in which students are able to participate, collaborate and communicate knowledge, also having a strong control over the learning precept, being mainly based on Web 2.0 collaborative tools. Recently, Web 2.0 has evolved to Semantic web or Web 3.0, which differs from Web 2.0 by being better at defining and describing relationships between data. Web 3.0 also extends the social aspects of Web 2.0 by using mobile devices, cloud computing, and cloud-based collaborative working tools, such as Google apps (Halupa, 2015). Hence, MALL is portable, ubiquitous, persuasive, personal, contextual and many times informal.

In this environment based on mobile technology, education focuses on the learning process, the lifelong learning approach, the self-directed learning model - the heutagogical model (Gerstein, 2013).

Noteworthy as an important aspect of learning in the digital era is peer learning, connecting people to other people based on the desire to share information in a community, thus creating a mentoring situation on various levels of expertise, and a complex learning environment (Rose et al., 2002). The network, i.e. the community, decides what is important for learning, according to the priorities it identifies. Due to the multi-layered and multi-directional capability of hypermedia links, knowledge building becomes chaotic, non-hierarchical; knowledge can be negotiated being oriented towards mutable goals (Cormier, 2008). An example of such a rhizomatic learning structure is Wikipedia, with its advantages and disadvantages, often used as a resource in language classes.

Understanding the complexity of the learning environment and applying these learning theories created to explain ICT-mediated learning are useful for language teachers in designing and delivering the curriculum adapted to the digital age. In this sense, we can identify ICT integration trends and pedagogical models to enhance learning experience in language classes.

3. ICT integration trends and pedagogical models in language classes.

Because most students possess mobile devices, a ***Bring Your Own Device (BOYD)*** approach to MALL can also be implemented in pre-university education. Even for primary education, a level at which not all students have a mobile device, the investment in such devices is much more advantageous for schools, in terms of costs, space and mobility than in the investment in computers, as mobile technology expands learning activities outside class and it can practically be deployed anywhere and anytime. In education, BYOD refers to the fact that students can bring their own mobile device (smartphones or tablets) into the

classroom to conduct learning-assessment activities. According to the NMC / CoSN Horizon Report (2017 K-12 Edition), schools worldwide have begun to implement BYOD in 2014-2015 (Freeman et al., 2017). Nevertheless, the presence of technology must be accompanied by the knowledge and implementation of pedagogical models of its integration into the teaching activities, so that technology can lead to the actual support and / or transformation of the learning activities created for pupils. We recall some of the most known and used such models.

The **Technology-Pedagogical and Content Knowledge (TPACK)** model is based on the idea that effective integration of technology in class depends on how teachers understand and use different applications and facilities combined with their knowledge of pedagogical and scientific content to design, manage and evaluate teaching activities.

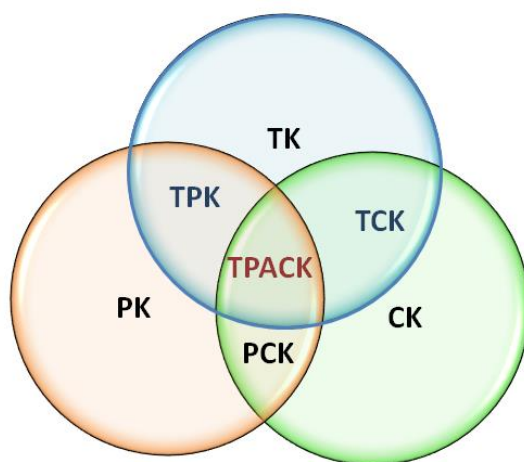


Figure 1. TPACK framework (adapted after <http://tpack.org>)

The model targets pedagogical knowledge (PK), content knowledge (CK) and technological knowledge (TK), and all intersections between Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK), Pedagogical Content Knowledge (PCK), respectively Technological Pedagogical Content Knowledge (Mishara & Koehler, 2006), a term later modified in TPACK.

The strategies proposed for TPACK development are diverse, based on instructional design, technology or discipline content, being integrative or transformational (TPCK is regarded as a unitary domain) (DeRossi, 2018).

Recently, various variants of the original TPACK framework have been developed based on digital tools, pedagogical approach or content such as e-TPACK (Angeli & Valanides, 2009), TPCK-Web (Lee & Tsai, 2010), TPACKing - constructivist perspective of TPACK (Olofson et al., 2016), TPACK in action (Tai, 2015), etc.

In teacher education, TPACK can be developed in various ways such as collaborative instructional design, pedagogical content knowledge (PCK) - focused learning, technological pedagogical knowledge (TPK) -focused learning,

reflective / reflexive learning, problem-based learning, computer-adaptive learning, instructional planning, and workplace learning (Harris, 2016). Competence development within the TPACK framework can be assessed through strategies of the type of performance observation, assessment and self-assessment (DeRossi, 2018).

In the case of CALL and/or MALL, TPACK facilitates language teachers to understand how linguistic and cultural concepts can be represented using technology, but also how current and emerging technologies and modern pedagogies can be used to develop new knowledge (van Olphen 2008).

A second model is the Substitution-Augmentation-Modification-Redefinition (SAMR) model, developed by Puentedura (2009), which defines the various stages of technology integration in e-learning and m-learning, especially useful when converting content or resources from a traditionally delivered course to a blended / mixed course.

The model targets four levels of technology integration, as follows:

- Substitution (technology replaces another tool, with no functional change),
- Augmentation (technology replaces another tool, with functional improvements),
- Modification (the resource / learning activity has to be redesigned)
- Redefinition (the technology enables the creation of new tasks, new learning activities inconceivable without technology).

In this model, Substitution and Augmentation are regarded as ways to enhance learning tasks, while Modification and Redefining allow for transformation of these tasks.

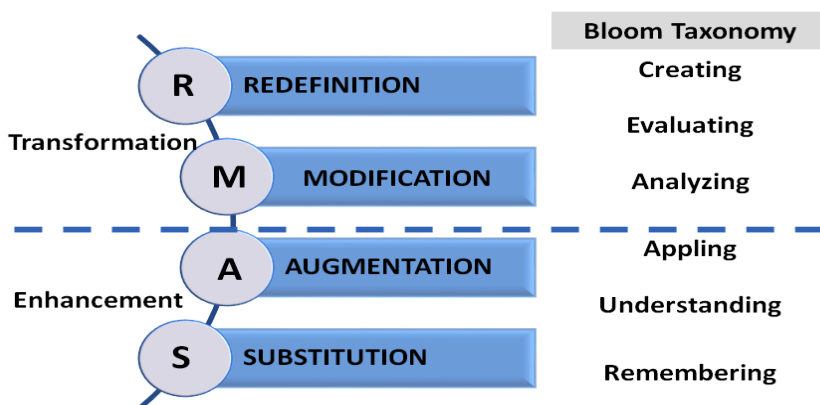


Figure 2. SAMR model and BLOOM's modified taxonomy (adapted after Puentedura 2014)

Note that the SAMR model may be linked to Bloom's digital taxonomy (Fig. 2) and to various ICT tools through The Pedagogy Wheel (Carrington, 2015). In the new version of Bloom's taxonomy, thought by Krathwohl (2002), the levels starting from the lowest one are Remembering, Understanding, Applying,

Analyzing, Evaluating and Creating. The new taxonomy is tailored for technology-based learning that helps the student to be a co-creator of knowledge.

4. Methodology

The study aims to investigate how preservice language teachers use and integrate fixed and/or mobile technology in designing teaching-learning-assessment activities in their domain, based on various pedagogical approaches. Students from the third year of the Faculty of Letters from the West University of Timisoara (WUT) were involved in this study. These students are also enrolled in the Teacher Training Program, offered by the same university.

We analyze the activities performed within the Computer Assisted Instruction (CAI) course and, in particular, the way in which preservice language teachers enrolled in this course subsequently applied the acquired knowledge in their didactic activities within the teaching practice.

Technology based pedagogical activities proposed by preservice language teachers aimed at content creation, knowledge transmission / presentation, formative and summative assessment (general activities), as well as activities specific to the philological field such as reading, writing, speaking, listening and vocabulary tasks. The model generally used for structuring learning activities by pre-service language teachers involved 4 steps, adapted after Bunz (2017):

- identify pedagogy (desired result, skills, activities) and content
- find the purpose (conceptual understanding, demonstrate knowledge, develop various skills, increase engagement and motivation, etc.)
- identify the functionality, select and evaluate the application
- plan the ICT integration (to enhance the language learning activity within a language class, BOYD - in language class activities, etc.)

The integration of technology in learning activities has been discussed based on the SAMR model, which demonstrates the level at which technology supports or transforms the learning task.

Regarding the TPACK development of preservice language teachers, we used a "TPK to TPACK" approach that starts from the analysis and application of certain technologies in the educational environment, and then passes on to the content of the subject taught. We chose this approach because the course was a common one offered to the various specialties of UVT.

The research questions underlying our study were the following:

Q1. *How can Web 2.0 and mobile technology enhance language classes?*

Q2. *How do preservice language teachers develop CALL and/or MALL competences and assess technology integration?*

Participants

The study was attended by 28 students from the third year of the Faculty of Letter from the West University of Timisoara (WUT) that are also enrolled in the psycho-pedagogical training program offered by Teacher Training Department (DPPD) offered by the same university, out of a total of 54 enrolled students, in the academic year 2018-2019. Participants were between 21 and 26 years old

(an average of 21.4 years old), 92% female and 8% male. Specializations studied by these students are Romanian 31%, English 29%, French 16%, Spanish 5%, Italian 3%, German, 5% and other languages 1%.

Instruments

Preservice language teachers used the SAMR model and / or steps in the BUNZ model to develop CALL and/or MALL competencies that were assessed through the TPACK framework. For the assessment, we adopted a reflexive strategy for teachers' TPACK development (Foulger, 2015), which aimed at pre- and post-activity TPACK self-assessment, applying the Sahin (2011) TPACK survey. This is one of the tools recognized in the specialized literature for TPACK teacher assessment, centered on the content areas they teach in the classroom. The survey consists of 47 items focusing on seven subscales of teacher knowledge (TK, PK, CK, TPK, TCK, PCK and TPCK). These items use a 5 point Likert scale response; from strongly disagree to strongly agree. We evaluated the reliability of our sample, and the results obtained revealed that all seven subscales achieved Cronbach alpha levels over 0.70 (the survey was reliable). On the subscales we have TK (15 items), PK (7 items), CK (6 items), TPK (4 items), PCK (7 items), TCK (4 items) and TPCK (5 items). We exemplify the items in the TPCK subscales, taking into account that we are particularly interested in how future teachers have evaluated their progress on this segment.

Table 1. Technological Pedagogical and Content Knowledge (TPACK) subscale items (Sahin, 2011)

TPCK_1. Integrating didactic methods and educational technologies relevant to didactic activity in my specialization.

TPCK_2. Selecting teaching strategies and modern technologies that help me teach effectively.

TPCK_3. Teaching successfully by combining my content, pedagogy, and technology knowledge.

TPCK_4. Taking a leadership role among my colleagues in the integration of content, pedagogy, and technology knowledge.

TPCK_5. Teaching a specific theme using various teaching strategies and applications.

Activity description

For seven weeks, preservice language teachers have studied various online application groups, specialized software and digital resources, taking into account their effective use in the educational environment, from various teaching-learning activities, pedagogical methods and organizational forms of a supposed CALL or MALL activity. These activities focused on the creation of content, the transmission / presentation of knowledge, formative and summative assessment, activities that can be carried out regardless of preservice teachers' specialization, being described in detail in Craciun (2019). A second set of activities, designed for the philological field, focused on reading, writing, speaking, listening and vocabulary. Finally, each preservice teacher has

created an e-Portfolio with the Google Sites application, presenting various technology-based learning activities, describing the technology used, how to integrate it, and reflecting on the work being done with that application. The portfolios were posted on a Padlet panel (<https://ro.padlet.com/>) created to present and evaluate the course activity.

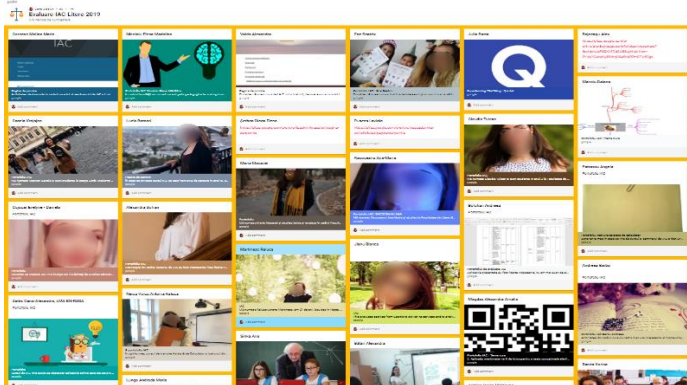


Figure 3. Padlet- evaluation CAI 2018 Faculty of Letters – All specializations
Activities designed by preservice language teachers were presented to classmates through the Edmodo class platform, and they could view and comment on the posts. However, some activities were evaluated as individual assignments uploaded to the platform.

Following the feedback received, the proposed activities were redesigned, and collaborative preservice language teachers grouped activities in tasks, depending on the SAMR levels, discussing how activities can be folded on the TPACK framework.

5. Results and discussions

Learning activities designed by future language teachers

Without going into too many details, we briefly describe an example of a general activity that targets formative demonstration for knowledge / reflection. Starting from the initial activity without the involvement of ICT, there were discussions on the ways in which technology can support this task by replacing instrumental evaluation material (test, rebus, activity sheet, etc.) with a quiz (Google Form, Mentimeter <https://www.mentimeter.com/>) to ways the technology completely redefines the task, using the Mobile app (Kahoot <https://kahoot.com/>, Socrative <https://socrative.com/>, Mentimeter) to gamify the assessment or writing through online applications (Google Sites e-Portfolios shared to a global audience).

Below are some of the activities / tasks proposed by preservice language teachers for philology-related learning and assessment activities (see Tables 2 and 3). Even though the activities were designed based on a subject studied in the curriculum, the activities are presented only in the way that the applications / technology themselves are valued according to the SAMR model, considering that students chose themes folded onto the studied languages which sometimes have targeted specific competencies.

Noteworthy for foreign languages, preservice language teachers have highlighted the multiple possibilities of integrating various digital content and collaborative online applications to understand the content taught, the use of background knowledge, conversation interpretation, understanding native speakers and identifying specific information, and of the main ideas, especially for listening activities.

Table 2. Simple learning activities (designed for pupils)

<i>Activity1</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Reading A text (high school)	Students read a pdf / doc sent by mail, posted on an e-learning platform etc.	Students read using the dictionary and text search facilities	Students add text using specific applications (Google Docs, Notability)	Students browse the contents of an interactive book / use classic augmented textured textures with multimedia elements Aurasma Aurasma https://www.aurasma.com/
BLOOM taxonomy	Remembering	Understanding	Analyzing	Analyzing
<i>Activity2</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Vocabulary building to demonstrate knowledge (high school)	Students take notes in a Google Doc about (a place for holiday, itinerary, etc.)	Students create a postcard using images and text / a map with text and photos- Google maps	Students create a digital brochure/ infographic https://piktochart.com /	Students write via online applications (Google sites) to share and comment information about their trip
BLOOM taxonomy	Remembering	Applying	Creating	Evaluating and Creating
<i>Activity3</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Listening activity (middle school)	Students listen dialogues/texts available on the learning platform and complete a fill-in exercise in a Google docs	Students listen (with pause/replay in their own pace) dialogues/texts available on Podcasts and complete online exercises	Students in pairs listen to a dialogue, read transcription and voice dialogue using Vocaroo Vocaroo https://vocaroo.com/ complete with matching replies	Students (in pairs) watch a video on YouTube and make an animated movie around the main idea / theme of the movie using PowToon https://www.powtoon.com posting it for the entire school community on a Padlet panel
BLOOM taxonomy	Understanding	Understanding and Applying	Analyzing and Evaluating	Creating

Table 3. Formative/summative assessment activities
 ‡(designed for pupils)

<i>Activity1</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Asses vocabulary (middle school)	Use Google Sheets/ docs to create a vocabulary table with the definitions (and images) for every word	Organize the vocabulary using concept map with Coggle https://coggle.it/	Record a short video Animoto, Tellegami https://tellegami.com/ with words, definitions, suggestive images	Use Quizlet https://quizlet.com/ to create flashcards with the selected words and definitions
BLOOM taxonomy	Understanding	Applying and Analyzing	Creating	Creating
<i>Activity2</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Speaking assessment (high school)	Students conceive a text (requirement for evaluation) and record it individually with an audio editor, e.g. Vocaroo	Students create a text and register it using an expressive avatar created with Voki https://www.voki.com/	Students write, record individually and post on the eLearning platform (Edmodo, Google Classroom, etc.) to give and get feedback	Students use the Flipgrid https://flipgrid.com/ platform to post audio / video with assessment requirement
BLOOM taxonomy	Applying	Analyzing	Evaluating and Creating	Evaluating and Creating
<i>Activity3</i>	<i>Substitution</i>	<i>Augmentation</i>	<i>Modification</i>	<i>Redefinition</i>
Writing assessment text descriptive /letter (middle school)	Students write the text with a text editor (MS Word, Google Docs)	Students write the text with a collaborative text editor (Google Docs) correcting each other	Students write a text that includes multimedia elements etc. and attaches a QR code for fast mobile access	Students write the text and share it on a site, blog, in a public post, asking for and giving feedback
BLOOM taxonomy	Applying	Applying and Evaluating	Analyzing and Creating	Creating and Evaluating

Q1. Examples of applications used and received feedback

The applications used in the design of learning activities are presented in Fig. 4.

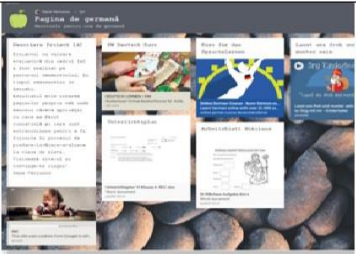
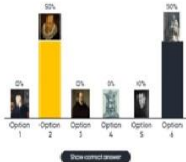



Figure 4. Word cloud applications used by preservice language teachers

The most widely used applications, expressed in the training-learning portfolios were Padlet (88%), Mentimeter (93%), Edmodo (100%), Quizlet (93%), Coogle (93%) and Google Suite (100%).

We present some examples and select from the feedback provided by future language teachers on how these applications, especially the collaborative ones, can be effectively used by teachers and students (Table 4).

Table 4. Applications, activity examples and feedback

Application	Example	Characteristics/ How it sustains language learning
Padlet		<p>"can be a multiple resource of differentiated learning activities", "facilitates communication and collaboration", "easy to use", etc.</p> <p><i>Ex - Resources in German, middle school</i></p>
Mentimeter	<p>¿Cuáles Cervantes?</p> 	<ul style="list-style-type: none"> ▪ "offers real time results", "motivate students", "time efficient", "makes my presentation interactive" ▪ <i>Ex: Miguel de Cervantes/ Don Quijote de la Mancha</i>
Coogle	<p>- Fable characteristics, middle school</p> 	<p>"facilitates organization/synthesis of information", "helpful for brainstorming and exchanging ideas", "makes recap more efficient", "offers team work possibilities" etc.</p> <p><i>Ex - Fable characteristics, middle school</i></p>

Analysing the planned activities, the way of integrating the chosen applications, the feedback offered to colleagues, and the reflections on the activities of future

language teachers, we can conclude that from their perspectives, MALL implementation aims at least 6 important aspects: providing flexibility of learning in time and space, motivating learners in learning languages, mobile learning tasks are interactive and can be easily folded to the students' learning needs, mobile technology facilitates independent learning, easy updating of information in the digital environment and access to up-to-date resources, and it helps integrating language learning into real world context.

Q2. Developing preservice language teachers' TPACK through mobile collaborative applications

Determining how future language teachers have developed their technological and pedagogical skills through their training activities has been done by analyzing data from pre- and post-activity TPACK self-assessment.

The obtained values for the seven subscales, calculated with the SPSS statistical software, respectively with https://memory.psych.mun.ca/models/stats/effect_size.shtml are shown in Table 5. (with m= mean; SD = standard deviation; dif. = difference between post-test mean and pre-test mean; t = indicator for the applied statistic; p = statistical significance threshold - $p < .05$ = significant and d = effect size)

Tabel 5. T-test values for paired pre and post activity assessment

Subscale	Moment for testing				dif.	t	P sig (2tailed)	Effect size d
	Pre-test (n=28)		Post-test (n=28)					
	m	AS	M	AS				
TK	3.97	.68	4.24	.51	.27	6.06	.000	1.16
PK	3.82	.82	4.39	.46	.57	3.54	.001	.667
CK	3.88	.79	4.45	.50	.57	3.68	.001	.696
TPK	3.86	.41	4.68	.64	.82	4.12	.000	1.148
PCK	4.21	.64	4.57	.50	.35	2.51	.018	.488
TCK	4.03	.96	4.73	.41	.71	4.01	.000	.752
TPCK	3.79	.92	4.49	.51	.70	4.04	.000	.763

Analysing the self-reported data, there was a significant increase in competencies in all TPACK domains. Also a significant increase for all five items for the TPACK subscale has been observed.

The greatest progress has been identified for technological skills/knowledge, due to the specificity of the course and the initial digital competencies level of the preservice language teachers. The second greatest effect size was observed for pedagogical and technological skills/knowledge, the TPK subscale, which also related to the specifics of the course, focusing on the pedagogical knowledge and skills.

The obtained values for the TPACK subscale items are shown in Table 6.

Table 6. T-test values for paired TPACK subset

Item	Moment for testing				df	t	P sig (2tail)	Effect size
	Pre-test (n=28)		Post-test (n=28)					
	m	AS	M	AS				
TPCK_1	3.75	.97	4.54	.58	.79	3.67	.001	.64
TPCK_2	3.96	.99	4.54	.69	.57	2.74	.011	.53
TPCK_3	3.68	.98	4.54	.69	.86	4.50	.000	.86
TPCK_4	3.43	1.2	4.14	.93	.71	2.63	.014	.49
TPCK_5	4.14	1.01	4.71	.46	.57	3.44	.002	.65

There was a significant gain ($P < 0.05$) for all TPACK items. In a decreasing order of the effect size, the first highest increases were observed in items 3, 5 and 1. This demonstrates the progress of the participants in making the proper choice of technology, folded on pedagogical needs specific to teaching language topics, increasing the ability to select the technology and the teaching strategy. The biggest progress has been identified for TPACK_3, in which, in the post-activity reflections, preservice language teachers have pointed out that they are more confident in using fixed, but especially mobile technology, in the design and development of teaching activities, folded on specific language learning teaching methods and on the content/competencies concerned.

The significant increase for TPCK_1 reflects the fact that future language teachers believe that through their activities they have developed / improved their skills in the selection and integration of technologies and teaching methods.

On the other hand, the lower results obtained for items TPCK_2 and TPCK_4 may be explained through the fact that the majority of future language teachers involved in the study did not actually have teaching experience except for a few lessons (4 in this semester) in pedagogical practice and did not yet have the opportunity integrate into a teaching community, practice classes being scattered and often individual.

6. Conclusions

This study identified the future language teachers' perceptions about the potential of ICT for an effective learning, assessing the progress they have made in identifying and understanding the integration of technology in the classroom through the TPACK framework and the SAMR model, folded on the succession of steps, adapted after the BUNZ model.

Various types of resources and online tools with potential for language learning have been presented, analyzed and applied, building learning sequences based on the SAMR model. Preservice teachers' reflections on these activities have highlighted a better understanding of how well-chosen, applied technologies can transform tasks to enhance student learning.

The results obtained by preservice teachers reveals the need for a technology-based, integrated approach to language learning, understanding how digital technology, the knowledge and correct application of learning models based on fixed or mobile technology can transform learning tasks, the latter facilitating formal and/or non-formal learning. The results also highlight the fact that such technology-based learning activities, lead to developing CALL and/or MALL skills in future language teachers enrolled in the teacher training program, increased their confidence in the use of technology in their present and/or future teaching activities, and especially to awareness of the importance of a correct, conscious and effective integration based on appropriate pedagogical principles and technology.

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Developing pupils' critical thinking by teaching Mathematics

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Abstract:

This article presents a research project on the development of critical thinking of 6th graders in Caraş-Severin county using an educational program based on learning by discovery and problematisation. The first stage of the research consisting in diagnosing the of critical thinking level of development of 5th graders in Caraş-Severin county using a critical thinking test based on the Watson-Glaser model. We selected a representative lot of 542 pupils, taking into account the results of this test, the geographic distribution, the urban-rural environment, the teaching experience of the teaching staff teaching these pupils, then we sampled these pupils forming the experimental lot and the control lot, close in terms of critical thinking level. We elaborated, deployed and validated a training program "Developing Critical Thinking of Pupils by Teaching Mathematics", a training course offered by the Caraş-Severin House of the Teaching Staff, the teachers participating in this course being those who taught the pupils in the experimental lot. After the completion of the intervention, the pupils in the two lots were tested again using the same type of tests, namely, Watson-Glaser, obtaining significant differences in favour of the experimental lot. We wanted to see if these abilities were stable over time and we applied a new test 3 months after the end of the intervention, and the conclusion was that the change was long-term, but also that the intervention created a series of abilities which pupils continue to use in order to improve their performances, even if the intervention was over. The interpretation of the results was done in SPSS using Mixed Bifactorial Variance Analysis (ANOVA) with Time as the Within Subjects factor and Group as the Between Subjects factor.

Keywords: critical thinking, learning by discovery, problematisation

1. Delimitation of the research issues

"Critical thinking is the use of those cognitive skills or strategies that increase the likelihood of a desired result [...] describes thinking that is deliberate, motivated, and purpose-oriented - a kind of thinking involved in solving problems, formulating conclusions, calculating probabilities, and making decisions..."(Halpern, 2003, p.6)

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The critical thinking skills can be taught and learned. Experts mention that the most effective method of teaching them is the explicit and direct one. Pupils learn how to evaluate the credibility of a source of information and how to make content-independent decisions, which also makes it possible to transfer these skills to other themes and contexts. Like any abilities, these skills, once acquired, must be practiced. There is no better context for this than the educational context (Fischer, 2001).

There are studies that directly linked logic and critical thinking. Meyers (1986) shows that the study of logic does not seem to contribute to the development of the ability to think critically, but Bernstein, later on (1995), using informal logic to teach critical thinking, concluded that logic provides a powerful guideline in critical analysis of arguments, but does not help to harmonize competing arguments (Moon J., 2008, p.40).

We shall attempt thus to see to what extent the teaching of Mathematics through problematization and discovery leads to the improvement of pupils' critical thinking.

Unfortunately, in the school curriculum for the Mathematics subject approved by the Order of the Minister of Education and Research no. 3.393 of 28.02.2017, in force since the school year 2017-2018, this concept appears only twice, extremely rarely compared to what society needs.

2. Research design

Research purpose, objectives and duration

The aim of our research is to test the level of pupils' critical thinking skills and to improve them by teaching maths with the help of problematisation and learning by discovery.

In compliance with its purpose, the research aims to reach the following objectives:

O 1: - Testing the critical thinking skills of 5th graders in Caraş-Severin county

O 2: - Conceiving, deploying and validating the training program **Developing critical thinking by teaching Mathematics in middle school**, training course offered by CCD Caraş-Severin, taught to Math teachers in order them to teach Mathematics for the purpose of developing pupils' critical thinking

O 3: - Monitoring teachers' activity after having attending the training program

O 4: - Comparative analysis of critical thinking skills of the 6th graders in the experimental lot and the control lot

3. Research hypotheses and variables

HYPOTHESIS 1. We expect that the educational program elaborated, focused on learning by discovery and problematisation, will significantly contribute to the development of pupils' critical thinking in the experimental lot compared to those in the control lot.

HYPOTHESIS 2. If the pupils in the experimental group will indeed show critical thinking skills superior to those in the control group, we want to see if these differences are stable over time.

Research independent variable: Teaching Mathematics to 6th graders through the methods of problematisation and learning by discovery

Research dependent variable: Degree of development of pupils' critical thinking

4. Participants' sample

In this experiment, a total of 542 pupils were involved, taking into account the results of this test, the geographic distribution, the urban-rural environment, the teaching experience of the teaching staff teaching these pupils, of which 285 were part of the experimental sample and 257 were included in the control sample.

We resume below the presentation of the structure of participants' sample in the pedagogical experiment according to the school of origin:

Table no.1 Structure of the experimental sample

Sample	College / Middle School	Number of pupils
Experimental sample	National College „C.D. Loga” Caransebeş	52
	National College "Mircea Eliade" Reşiţa	16
	National College „Traian Lalescu" Reşiţa	28
	Middle School "Ştefan Velovan" Rusca Montană	9
	Middle School "Trandafir Cocîrlă" Turnu Ruieni	13
	Middle School Băuţar	10
	Middle School Domaşnea	13
	Middle School No. 1 Oţelu-Roşu	29
	Middle School No. 2 Reşiţa	19
	Middle School No. 8 Reşiţa	38
	Middle School No. 9 Reşiţa	58
Total		285

TableNo. 2. Structure of the control sample

Sample	College / Middle School	Number of pupils
Control sample	National College „Diaconovici Tietz” Reșița	16
	National College "Mircea Eliade" Reșița	23
	High School „Mathias Hammer" Anina	33
	High School Hercules Băile Herculane	14
	Technological High School "Clisura Dunării" Moldova Nouă	68
	Theoretical High School "Eftimie Murgu" Bozovici	14
	Middle School Armeniș	23
	Middle School Goruia	6
	Middle School No.2 Reșița	45
	Middle School Tîrnova	15
Total		257

5. Research instruments used

In order to be able to analyse complexly and objectively a certain factual state, it is necessary to get the most accurate image, by collecting data on the issue in question. The performance of data collection, the measurement, the processing and the interpretation call for a set of specific research methods and techniques. None of the methods used, however complex and elaborate, would have been sufficient alone to produce the complete data set.

That is why we have resorted to a system of methods which, acting synergistically, have helped to build a clear picture of the current situation.

The method of psycho-pedagogic experiment involves introducing a change in the educational practice, i.e. an independent variable (in our case the method of problematisation and of learning by discovery) and in studying its impact on the dependent variable: the degree of critical thinking development.

In our research, the experiment was the main method of investigation used. Testing the working hypothesis involved organizing and conducting a system of didactic experiments, within which we investigated the valences of problematisation and of learning by discovery in the study of 6th-grade Mathematics.

The study of curriculum documents and other school documents is justified by the need to analyse the written mathematical curriculum, especially the competences proposed by the Ministry of Education regarding the study of Mathematics in middle school, as well as the components of the school curriculum, school textbooks and methodological guides.

This method was also useful for establishing the chapters and themes that will be used in the formative intervention, as well as for the study of the materials representing the pupils' work activities - workbooks, written evaluation papers and note books.

The written evaluation tests were designed to assess as objectively as possible the evolution of the pupils in the experimental and control forms by setting the scores for each item / question, depending on their degree of difficulty.

The selection of the experimental and control forms was carried out after conducting written (initial) evaluation tests, which were meant to determine the overall level of the forms. The teachers of the experimental forms were invited to attend a training course titled **Developing critical thinking by teaching Mathematics in middle school**, training course offered by CCD Caraş-Severin.

During and after the study of the chapters included in the experiment, two evaluation tests were applied, as well as a final one, all these tests being identical for both types of forms. The results obtained at these final tests were compared with those obtained from the same form at the initial tests in order to appreciate the evolution of the forms; the results obtained by the pupils of the experimental forms and those of the pupils in the control forms were also compared to validate the experimental variable introduced. After 3 months, a post-test was conducted to check the time persistence of the outcomes of the psycho-pedagogical experiment

The initial test consisted in a critical thinking test based on the Watson-Glaser model, which aimed at diagnosing pupils' training and sampling them.

The test used was the following:

Problem 1: Passing on the street, we notice that the lights in the house in front of us are on and the TV is on.

Conclusion 1: There is someone in the house.

TRU E	PROBABLETR UE	INSUFFICIE NT DATA	PROBABLEFA LSE	FALS E
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Conclusion 2: At least one child lives in the house

TRU E	PROBABLETR UE	INSUFFICIE NT DATA	PROBABLEFA LSE	FALS E
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Problem2: To get to school faster, my parents take me there by car.

Conclusion 1: Going by car will get me to school faster than by walking.

YES	NO
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Conclusion 2: I like to go to school more by car than on foot.

YES	NO
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Problem3: All children like to play.

Conclusion 1: All those who play are children.

YES	NO
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Conclusion 2: I'm a child, therefore I like to play.

YES	NO
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Problem4: Children's vocabulary increases from 0 words at the age of 8 months to over 2,000 words at the age of six months.

Conclusion 1: No child has learned to speak before the age of six months.

YES	NO
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Conclusion 2: At the age of 3, the child uses more than 1,000 words.

YES	NO
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Problem5: Should it be only day, and night should never come?

Argument 1: Yes, because then we would play more

STRONG	WEAK
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Argument 2: No, because then we would be too tired.

STRONG	WEAK
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6. Stages of experimental research

The experimental research undertaken by us in order to explore certain possibilities of developing critical thinking falls within the category of research aimed at making teaching strategies more efficient by experimenting with new models of action as a researcher directly involved in the didactic process. The research is intended for the practical problems identified by studying the existing curriculum documents and seeks solutions to these issues in their context, allowing the opportunity to promote changes in the professional practice.

The experimental approach developed follows the established structure of pedagogical research, integrating the following action sequences:

- delineating the research problem, capitalizing on the conclusions of the bibliographic study
- conceiving a finding-of-facts preliminary study in the form of a preliminary needs analysis, necessary for the design and realisation of the experimental intervention;
 - establishing the purpose and objectives of research;
 - investigating the theoretical and applicative premises that will form the basis of the experimental research in se, synthesising the results of the researches existing up to that moment related to the studied problem, as well as the conclusions drawn from the deployment of the fact-finding investigation;
 - formulating the general hypothesis and the secondary hypotheses;
 - establishing and describing the sample of subjects and compiling the content sample;

- realisation of the experimental action, observing the stages: pre-experimental, experimental and post-experimental;
- synthesising the data obtained by means of pedagogical research methods and tools appropriate to the researched topic;
- analysing, taking over and interpreting the quantitative and qualitative scientific data obtained by combining qualitative and quantitative analyses;

In order to test the effectiveness of an educational program focused on the use of problematisation and discovery in teaching Mathematics, measured in terms of the development of pupils' critical thinking, we carried out an experimental type of perfecting experiment, which included several stages (pre-experimental, of the formative experiment, post-experimental, of retesting)

7. Analysis of the research result

In order to understand the analysis of the results, I consider it useful to recall the hypotheses of the research:

HYPOTHESIS 1. We expect that the educational program elaborated, focused on learning by discovery and problematisation, will significantly contribute to the development of pupils' critical thinking in the experimental lot compared to those in the control lot – this difference refers to the moments T0 (pre-intervention) and T1 (post-intervention).

Figure 1 gives details regarding the research

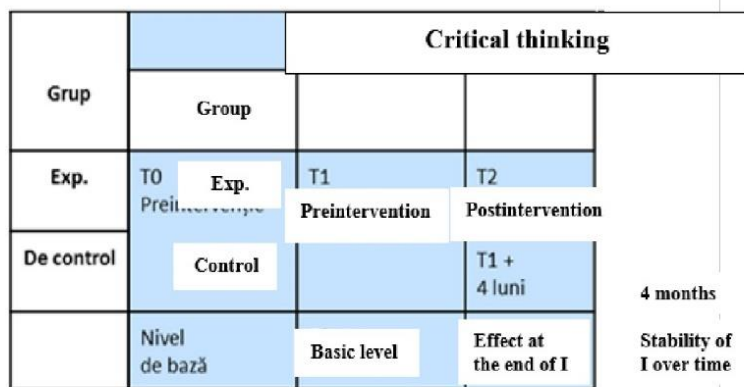


Figure 1: Research design

design and the collected data structure.

HYPOTHESIS 2. If the pupils in the experimental group will indeed show critical thinking skills superior to those in the control group, we want to see if these differences are stable over time. In this sense, we are again testing three possibilities:

HYPOTHESIS 2a - the performances of the experimental group do not change significantly from the moment T1 (post-intervention) at the moment T2 (retest),

which would indicate that the change is long-lasting and the pupils' performance remains stable over time;

HYPOTHESIS 2b - the performances of the experimental group drop significantly from the moment T1 (post-intervention) to T2 (retest), which would indicate that the change is not long-lasting and the critical thinking level decreases over time;

HYPOTHESIS 2c - the performances of the experimental group increase significantly from the moment T1 (post-intervention) to T2 (retest), which would indicate that the change is not only long-lasting and does not decrease in time, but also that the intervention created a series of critical thinking skills that pupils continue to use to improve their performances, although the intervention is over.

To test hypothesis 1, we used the mixed binary factor ANOVA with *Time* as the Within Subjects factor (T0, T1) and *Group* as the Between Subjects factor (Experimental, Control) and we can obtain 3 types of outcomes:

1 - main effect of the *Time* factor, which would indicate that there are significant differences in the critical thinking level for the tests applied at different moments.

2 - main effect of the *Group* factor, which would indicate that there are significant differences between the two lots, but without providing us with information about the differences between the different moments in time.

3 - *Time x Group* interaction, which is finally the effect that would confirm Hypothesis 1, indicating that there are differences between the two groups at different moments in time.

If we obtain a significant interaction, we shall use another *t* test for independent samples in order to compare if there are significant differences between the performance of the experimental group and of the control group at the post-test, at the moment T1.

If Hypothesis 1 is confirmed and the experimental group performs better than the control group, we will test Hypothesis 2. We would use in this case a *t*-test for paired-samples to detect the relationship between the performance at post-intervention and retest within the experimental group.

Another aspect that requires consideration in ANOVA testing is the *assumption of sphericity*, which represents the condition that the variances (data dispersion under different conditions) of the differences between the possible pairs of the Within factor (e.g. the difference between T0 and T1, or T1 and T2) should be equal. If this condition is not met, there is a risk that the ANOVA results are distorted in a way that would lead to the inflation of coefficient F. The testing of the sphericity assumption is done using Mauchly's test (Mauchly, 1940). If the assumption of sphericity is not met, we shall use Greenhouse-Geisser corrections (Greenhouse & Geisser, 1959), by which the ANOVA degrees of freedom will be adjusted in order to calculate an appropriate *p*-value. All the effects will be expressed taking into account the level of statistical significance set at the threshold $p < .005$. Along with the statistical significance threshold we shall report the increase in the effects obtained (effect sizes, η^2).

The ANOVA results in tests that measure critical thinking are presented in Tables 2 (WithinEffects) and 3 (Between Effects) for the two groups at the moments T0 – Pre-test, T1 – Post-test. Please note that for the analysis of critical thinking, we used only data from the pupils who sat all three testing moments. Consequently, the data from a total of 257 pupils contributed for the experimental group and from 217 pupils for the control group.

The assumption of sphericity was encountered (as it always is when the Within factor has only two levels), and thus there is no need to apply Greenhouse-Geisser corrections. We obtained a significant main effect of the time variable, ($F(1, 473)= 75.48$ $p<.001$, $\eta^2=.133$), indicating that there are differences between Pre-test and Post-test. The time * group interaction is also significant, ($F(1, 473)= 18.20$, $p<.001$, $\eta^2=.032$), indicating that there are differences between the two groups at different moments in time. As for the Betweeneffects, the two groups do not exhibit significantly different performances if we do not take into account the effects of the Time factor

Table No. 3. Results for creative thinking, Within effects

	Sum of Squares	d f	Mean Square	F	p	η^2
Time	4216	1	4215.81	75.48	<.001	0.133
Time*Group	1017	1	1016.73	18.20	<.001	0.032
Residual	26420	473	55.86			

Table No. 4. Results for creative thinking, Between effects

	Sum of Squares	d f	Mean Square	F	p	η^2
Group	1087	1	1087	1.068	0.302	0.002
Residual	481583	473	1018			

Given that we have obtained a meaningful interaction term, we shall proceed by further testing whether the two groups have significantly different post-test performances (Hypothesis 1) using *t* tests for independent samples. This test indicates that the two groups have actually significantly different

performances at the moment T1 ($t(473) = 2.006, p = 045$). In other words, it seems that our hypothesis is confirmed, the pupils in the experimental lot developing higher critical thinking skills as a result of the educational intervention.

Nevertheless, are these abilities stable over time? In order to identify the answer to this question and also to test Hypothesis 2, we use a t test for clustered samples that compares the performance of pupils in the control group at the moments T1-Post-test and T2-Retest. The result shows that the performance of the experimental group increases significantly at Retest ($t(256)=5.30, p<.001$)—this effect can be seen in Figure 2. According to Hypothesis 2c, the improvement of critical thinking in the experimental group not only is long-lasting and does not decrease with the passage of time, on the contrary, it even increases over time, possibly because the intervention has created a series of skills that pupils continue to use in order to improve their critical thinking.

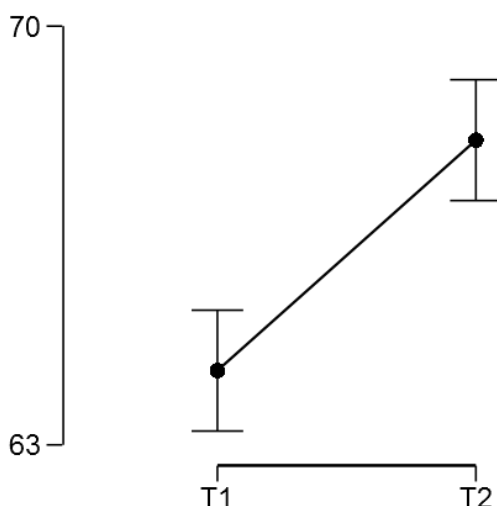


Figure 2 - Critical thinking over time as a result of the educational intervention. T1-Post-test is the moment when the pupils in the control group were tested at the end of the educational intervention. The performance increase at the moment T2 - Post-test indicates that the critical thinking skills of the experimental group continue to develop over time after the educational intervention is over. Axis Oy indicates the mean/average results in the tests applied at the two moments in time (measured on a scale from 0 to 100).

8. General conclusions regarding the research conducted

The final conclusions were divided into three main categories, namely:

- a) General conclusions related to the research (considerations linked to what we set out to accomplish, how we researched and what we achieved);
- b) Conclusions on the limits of research (considerations regarding the difficulties and obstacles encountered);

c) Suggestions for future researches (considerations regarding both our own research path and some recommendations made to Math teachers in order to optimize their teaching performance).

a) What we set out to accomplish (starting point)

The moment of the decision to elaborate this study was when some friends, executives in a programming company, told me they did not understand what we were doing in the educational system, because the graduates of the computer science faculties were not able to make new decisions. They are good specialists, rather good performers, but cannot filter information, cannot weigh alternatives, cannot make reasoned decisions.

Then I began to look in a different manner at what was happening around me, in society, and I began to observe how pupils think and what was there to do. I realized that it is not an isolated problem, but it is a problem of the entire society, namely that it is difficult to make decisions based on a rigorous analysis of the situation and that, most of the time, we make hasty decisions based on what we feel at that moment.

I started studying the works in the literature and I learned only then that what we really lack is critical thinking, and the next question was whether we can measure it, and whether we can contribute to its development.

I discovered that a valid measuring tool for critical thinking is the Watson – Glaser test, then I composed items based on this test for the Neutrino contest.

I also asked myself whether the teaching of Mathematics through discovery and problematisation improves pupils' critical thinking skills and I intervened on a number of 542 six-graders in Caraş-Severin county. The selection of the 542 pupils was made taking into account the geographical distribution, the urban / rural percentage, and also the experience of the teachers of those forms, and in the choice of the 6th grade forms the prevailing fact was that it is the grade of the first impact with Mathematics that requires making decisions in solving problems, not just applying solving recipes. Depending on the results at the initial test, the geographical distribution, the urban / rural share, and the experience of the teachers of these forms of pupils, we divided this sample into an experimental lot of 285 pupils and a control lot of 257 pupils. I taught the teachers of the experimental group a training course entitled Developing critical thinking by teaching Mathematics in middle school, and these teachers during the first semester of the 6th grade taught Maths using problematisation and learning by discovery, and also using the approach learned during this training course. At the end of the first semester, when our intervention ended, the pupils of the two samples were tested against the same items, and we obtained significantly better results in the experimental sample. In order to validate the stability of these skills over time, we proceeded to a retesting at the end of the second semester, the results confirming not only that these abilities are preserved, but also that they develop even without continuing the actual intervention.

b) Conclusions related to the research limits (considerations regarding the difficulties and obstacles encountered)

Like any research, it also had its difficulties.

A first obstacle was the selection of a representative sample of pupils in Caraş-Severin county, and even if we took into account the geographical distribution, the urban / rural percentage, and the experience of the teachers of these forms of pupils, it is possibly that this selection is not the most appropriate.

The second problem was the participation of the pupils in all three measurements of critical thinking skills. In the experiment we included 542 pupils, but only 474 participated in all three measurements, so in order to avoid any misinterpretations we used only those who participated in all three measurements to interpret the results. I keep asking myself whether in the future survey the number of 68 participants lost during the research could not be reduced.

Another question is whether the results obtained in the experimental group are not influenced by the fact that the pupils get familiar during the didactic process with that type of items and not necessarily that their critical thinking skills have progressed. This is a question I still have no answer to.

The fact that at retesting also the pupils in the experimental group get better results than those in the control group could make me believe that these results are due to the development of their critical thinking skills, but I am not sure if their teachers returned to the classical teaching approach or still teach these pupils using learning by discovery and problematisation.

c) Suggestions for future researches (considerations regarding both our own research path and some recommendations made to Math teachers in order to optimize their teaching performance).

My research does not stop here, I want to study whether teaching through problematisation and learning by discovery also improves the school performance of pupils; in this respect I collected the test results, the school average grades and I shall follow the results of the national evaluation of the pupils involved in the research. I will also monitor the results of these pupils in Physics and Chemistry to see if they are influenced by the manner of teaching Mathematics.

I would be delighted if these methods should be used predominantly by Mathematics teachers, and by other teachers as well, because the pupils' results were significantly better.

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