

EDUCATION AS INTERDISCIPLINARY KNOWLEDGE: PRODUCTION, THEORY AND PRACTICE – IN SEARCH OF AN ESSAY

Emanuel Oliveira Medeiros

University of the Azores

Abstract

Throughout the text, we will be combining a dialogue of experiential construction and knowledge, linking methodology and object, a method that by its nature should be integrated by mobilising processes and procedures of various genres.

We will analyse some aspects of Education as an Interdisciplinary Area and Field of Knowledge in theoretical and theoretical and practical terms. We will highlight the concepts of multidisciplinary, interdisciplinary, and transdisciplinary, having in mind the cross-cutting dynamics of Curriculum and Knowledge. We will mention authors whose quite relevant studies potentiate an integrated curricular perspective that integrates Training, particularly the Multidimensional Training of Teachers. We will mention some legislation passed as part of the Portuguese Educational System, which helps understand the efforts to introduce interdisciplinary practices in the curriculum at the various levels of education in line with European and even global conceptions. We will highlight, among other possibilities, various areas of knowledge and specialties that substantially contribute – or could contribute – towards interdisciplinary reflection and work, particularly Philosophy of Education and Philosophy of Curriculum.

Keywords: Education, Interdisciplinarity, Complexity, Philosophy , Curriculum.

1. On the Theme and Object

We have defined for this paper the following theme: ‘Education as Interdisciplinary Knowledge: Production, Theory and Practice’. Throughout the text, we will be combining a dialogue of experiential construction and knowledge, linking methodology and object, a method that by its nature should be integrated by mobilising processes and procedures of various genres. We will use methodological approaches with historical-critical, analytical, reflective and comparative inclination, without following a linear

inductive or deductive logic that the complexity of the issue neither allows nor validates within the limits that we have to explore some of these strands of the utmost importance. There will certainly be a bibliographical research and document review but also aspects of the biographical method, since it is one that has accompanied us throughout life. It is, therefore, a challenge of epistemological configuration that we consider of vital importance to us.

2. Education as Interdisciplinary Field: Areas and Issues – Dynamics for Intertextualities

In theoretical and practical terms, that is, in the realm of Theory and Practice, Education is a field of great complexity that requires an interdisciplinary study and praxis. In this area of Knowledge and Human Action, various areas of disciplinary and interdisciplinary knowledge converge, with this area assuming an increasingly transdisciplinary nature. This transdisciplinary dimension leads us to unity, to a search for a connection of meaning, concepts and realities, to a search for a base of meaning and intersection that, in a phase that is mostly characterised by interface, is still at an interdisciplinary level. Therefore, to understand Education – particularly in what regards, for example, the training of educators and teachers – we must mobilise knowledge from various areas and specialties. Amongst others, we should mention Philosophy of Education, Philosophy of Curriculum, Education Policy, History of Education, Curriculum Development, specific Teaching Techniques, Professional and Educational Ethics, Citizenship and Civics, and Educational Administration.

One way or the other, the curriculum and curriculum designs always portray the conceptions and the balance of forces that determine them, based on an Education Policy which always reveals, explicitly or implicitly, a certain perspective and vision of Society and Man, that is, of what is regarded as important and worthy of being taught and learned. The curriculum organisation and structure always have underlying conceptions and are subordinated to an Education Policy. A more or less explicit political or ideological position can also concur for this vision of Education Policy, particularly prior to elections, but always with unforeseen elements, spelled out in the (future) government programme or in the political platform, listing priorities and certain political options, particularly in terms of education, vocational training and curriculum.

In certain situations, the government official in charge of Education – the element of subjectivity – can be, in some cases more than others, determinant in the measures adopted or to be adopted and also in the methodologies used by the government. There are ministers that you immediately know what they will do, especially if – among other things –

they have written and adopted public positions of rupture before being invited to the post. This happened with the current Minister of Education. Like them or not, have this or that position, the fact is his thoughts on nuclear issues of Education and Teacher Training had been known for a long time. If we undertake a hermeneutical analysis of his writings and public statements before being Minister, we see that they are in line with its action as Minister. One can agree or disagree, but there is coherence which in itself is positive. After these four years, Education will not be the same either by adhering to the measures or by opposing them. Perhaps, as time passes, we will see why there was a determined option for national examinations – of which we have never been big supporters – or understand his earlier criticism of the so-called ‘eduquês’ [parlance introduced by some recent educational trends] and ‘bolonhês’ “term used to refer to the focus on skills to the detriment of knowledge].

We must point out, however, that one cannot regard everything at the same level. In Education Sciences – which are of the utmost importance – there are various trends and currents, something which in itself is good. Perhaps, as time passes, we will see the relationship between meritocracy and democracy, that is, a situation in which all students have an actual chance (not just on paper) of reaching a level of literacy that helps them to defend themselves in a competitive and highly demanding Society. More than a curriculum differentiation – a concept that is valid and that we understand – we prefer to mention and defend Curriculum Diversity. We are all different, with different strengths and talents.

In 2006, Professor Nuno Crato edited a book called *Rómulo de Carvalho. Ser Professor. Antologia de Textos de Pedagogia e Didática*. [Rómulo de Carvalho. *Being a Teacher. Anthology of Texts on Pedagogy and Teaching*]. Nuno Crato says, ‘Rómulo de Carvalho was aware of the crucial role of teachers and of the need of them leading their students’. He continues, ‘Simply by his extensive experience and his keen observation of teaching, Rómulo de Carvalho knew that one cannot encourage independent thinking if it is not patiently cultivated through guided observation, study, reflection and exercise. It is not by pretending that students are authors of their own knowledge that we can develop this critical and independent spirit’ (Crato, 2006:14-15).

I have always advocated that students, as students, that is, as responsible and co-responsible participants in the learning process, are agents that (re)build knowledge and that can, should and do bring new insights. There is always continuity and discontinuity in the teaching and learning processes; it is necessary to reconcile the conceptions of John Dewey and Bachelard in problematologic consistency. For the latter, there is an ‘epistemological break’; for the former, there is not. And we see how

there can be differences in Humanities and in the so-called Exact Sciences. But to think is also to poetise. It is Rómulo de Carvalho himself that shows us that sensibility is a luminous source of knowledge and an ability that should be boosted in the field of education of the being and in the beauty and aesthetics of knowledge. Knowledge that does not move the heart does not activate the brain. We have to think and to get know with the whole body and the five senses. How much interdisciplinarity do we need to master, and how much Culture do we need to promote, combining knowledge that we thought would be in dysfunction and exclusive disjunction? How much do we need to learn, still and always, with Edgar Morin?

We are talking about Rómulo de Carvalho, a man of the Experimental Sciences – how much experimentalism can destroy humanity! He was a science teaching Man; he was a Teacher of Physics and Chemistry. How much power and strength of magnets, attraction and repulsion spring out of these fields and touch, attract or repel human beings? Rómulo de Carvalho, who adopted the pseudonym António Gedeão, wrote poems for eternity, our eternity; beautiful poems, full of light, life and love; unique poems that talk to everyone, to each one of us and to the sensitivity of those who have it in being and knowledge. Poems like these: ‘Pedra Filosofal’ [‘Philosopher’s Stone’], ‘Poema para Galileu’ [‘Poem for Galileo’], and ‘Lágrima de Preta’ [‘Black Girl’s Tear’]. When reading and interpreting these poems – to analyse them without the human soul is to mutilate them, will it be possible or permissible for reason to shut emotion and commotion? Poems that teach in ever new ways and from which interdisciplinary knowledge and expertise flow, these are Poems that, in every particle, every comma, every molecule, appear or emerge in perfect geometric synthesis. Here blood flows in the rigour of speech, and everything is looking for its perfect place in nature, culture, and human creativity, with order and disorder, as root elements that manifest themselves in Knowledge and in knowing as a generator verb. These poems feature everything in terms of beauty and perfection, and this is also valid for length, width and height, with *interdisciplinary anthropological education* equally revealing itself in concepts of simplicity, complexity and depth.

Multiple areas of interdisciplinary knowledge live in António Gedeão’s poems, within an aesthetic of successive touches and endless connections of meaning. There are also various faculties that enable and enhance knowledge itself, such as creative imagination but also solitary imagination, the imagination of brotherhood in a historic moment, when a grave injustice was committed against man and science. But Galileo endured, because the Truth moves and stands, safe before an unshakable conviction. It is appropriate to leave here some of António Gedeão’s poetic and scientific statements, inspired by Science, Humanity and the Values of Justice and also

by his deep conviction and defence of Democracy in and for Knowledge. Above all, there is the realisation that Science is axiological; Science is carried out by people and for people, even if it is also about the universe because the universe is seen by the Scientist, by mankind. There is, therefore, an evaluative and cultural look at Nature.

All poems by Rómulo de Carvalho, the Scientist – Doctor Honoris Causa – and the Teacher, have a density and content that are a clear expression of the experience, conceptualisation and pronouncement of interdisciplinarity in cultural and humanist syntheses that touch and move the scientist who experiments to verify the results. The poem ‘Lágrima de Preta’ [‘Black Girl’s Tear’] is also a shining example at a time when there are still so many forms of racism, including covert racism to which President Barack Obama drew our attention recently. It reads, ‘Encontrei uma preta/ que estava a chorar,/pedi-lhe uma lágrima/ para a analisar./ Recolhi a lágrima/ com todo o cuidado/ num tubo de ensaio/ bem esterilizado./ Olhei-a de um lado,/ do outro e de frente:/ tinha um ar de gota/ muito transparente./ Mandeí vir os ácidos,/ as bases e os sais,/ as drogas usadas/ em casos que tais./ Ensaiei a frio,/ experimentei ao lume,/ de todas as vezes/ deu-me o que é costume:/ Nem sinais de negro,/ nem vestígios de ódio./ Água (quase tudo)/ e cloreto de sódio.’ [‘I found a black girl / who was weeping, / I asked her for a tear / I could test. / I collected the tear / with great care / in a test tube / well sterilised. / I looked at it from one side / then from the other and from the front: / it was just a drop, / very transparent. / I asked for the acids, / bases and salts, / the substances used / in such cases. / I cold tested it, / then tried it with fire, / every time / the result was the same: / Neither blackness / nor traces of hatred. / Water (almost all of it) / and sodium chloride.’].

A Universal Poem, such as the Truth, Science and the timeless feelings of the Human Being. The poem features the word ‘traces’, and in rigour and truth, to research is precisely to look for traces, to prove and confirm, to make sure that it is the truth. Knowledge is construction but also discovery. In the construction of knowledge, with no positivism, it is of the utmost importance to use documents, but these also have to be subjected to a battery of tests, crossing information and comparing with other sources, for example, with reliable witnesses.

In a time of arid pragmatism without humanism, the ‘Pedra Filosofal’ [‘Philosopher’s Stone’] recovers the dream. The Child dreams and projects as, after all, a true scientist or philosopher does. We must recover the sense of a morning Philosophy, mentioned by Richard Rorty, or always awake in light of the motto of the University of the Azores – SICUT AURORA SCIENTIA LUCET – ‘assim como uma aurora a ciência brilha’ [‘as the dawn science shines’], as translated by Professor Machado Pires (Pires, 2015: 75 and 89). The author explains in his book *Memórias e Reflexões*

[*Memories and Reflections*] that it was a phrase that the distinguished Professor José Enes borrowed and proposed from the book *Ecclesiastes*. And we are certainly before bright and diverse sources of interdisciplinary knowledge in what regards education and culture.

In the great moments of educational and curriculum reform, there might be – and there has been in the Portuguese case – public consultations to gather opinions, to reach a consensus over certain measures and to approve certain documents, sometimes more successfully than others, in some cases adopted by the following governments, in other cases with ruptures introduced by subsequent governments. The area of Education is, academically speaking – and in practice, I would say – necessarily axiological. It should be, and it must be, axiological since it has to take into consideration human values as such. Furthermore, in political terms, bipartisan compromises might be often necessary, that is to say, the different political parties and political forces might need to reach agreements on what is essential or may be justifiably weighted and considered as essential, in order to create an environment of stable expectations among the various educational agents and stakeholders regarding, for example, what is to be included in the curriculum and syllabuses, the existence or lack of national examinations, and teacher training policies.

In the Portuguese case, there is an essential document that was adopted almost unanimously – the Basic Law on Education of 1986 – and that remains a reference to be reported not only by name but also by the date when it was approved, despite the two amendments that have taken place, one in 1997 and another in 2005. Its longevity is, therefore, rare. However, other general or more specific and targeted legislation has been passed, legitimising or having legitimised, in the Portuguese case, very different programmatic options even within the so-called Bologna process. And in this context, we can list or sketch some aspects that could lead us to Comparative Education, particularly within the European Union. But this is not the object of our paper.

On the other hand, in conjunction with what we have stated, today there is a connection between Education Sciences and the Education Policy or, if you wish, the scientification of Education and of the political decision-making process regarding education. However, both Science and Politics are not monolithic; there are also several paradigms and multiple methodologies that sometimes ideologically cross between the construction of educational knowledge and the different education policies. The objects, materials and scientific research subjects themselves are not neutral in their relationship with the methodological processes of research. One thing is aseptic research – if such a thing exists and is desirable – the other is field research, even if this field research is apparently only theoretical. Let us clarify. There may be

field research in education that, even unconsciously, leads to the scientification or manipulation of the subject in the field, and on the contrary, there may be theoretical research about education in which the subjects of education form the anthropological and human field of human action that is concrete and in the field. We could give many examples. It is the case, for example, of Paulo Freire, who has been revisited by many authors, equally Portuguese, including Professor António Sampaio da Nóvoa, who is, amongst others, a shining example of thinkers deeply involved in a clear and courageous action for the construction of educational knowledge for the benefit of individuals, communities and peoples. In this context, let us also mention the names of Professors José Ribeiro Dias and Manuel Ferreira Patrício. In their uniqueness, each has been the bearer of theoretical and practical knowledge of the utmost importance for the Educational Knowledge, the training of people and the transformation of communities. It is also curious that all mention several sources, including Poetry, which reveals the depth of their thought, their ability to engage in interdisciplinarity and the evidence that the scientificity of education should neither be confused nor reduced to any scientism and methodologism. The Education Sciences must talk about Education and Education must talk about People. Education is a living field, a field with a deeply human anthropological soul. It is no accident that António Nóvoa has long been interested in the autobiographical method in education and in the relationship between the person and the professional that intersect in the teacher. All this leads us also to the issues of educational axiology so dear to Manuel Ferreira Patrício, amongst other topics.

So what we have here is intertextuality, the intersection of perspectives on issues and problems related and important to education, as a Field to be cultivated and as an area that conjugates several areas of knowledge and multiple perspectives in interdisciplinary frameworks and dynamics.

Let us than talk about *interdisciplinarity*, which is a theme, a way of working, a methodology about which it is always important to get new insights, to cross new frontiers, and to take down some walls. Disciplinarity has a long history and a respected and respectable status; the same may happen with interdisciplinarity if it embraces – and it will only be credible this way – a path of diversity and unity that is much more enriching and enhancing, while promoting connections of fruitful conjugations. Interdisciplinarity implies cultivating culture, implies being cultivated not for exhibition but, on the contrary, as part of a genuine search for the much knowledge that is available to discover and build. Interdisciplinary Epistemology involves as much discovery as construction and (re)construction.

There is a huge gap between the discourse on interdisciplinarity and its practice that only Rigour and Competence allows to verify and scrutinise. Although using a different approach in what regards many issues of Education in Portugal, we consider that Professor Olga Pomba is one of the figures that has thematised interdisciplinarity in a greater and better way. All of her academic career and scientific production are unequivocal proof of the serious way how she approaches interdisciplinarity through a methodology that has summoned themes and authors to address different issues with all the necessary academic seriousness and competence. The cases of Professors Henrique Manuel Guimarães and Teresa Levy follow Olga Pomba's footsteps. In 2006, they published a book – *Interdisciplinaridade. Antologia [Interdisciplinarity. Anthology]*, edited by the three, with texts of great relevance from the following authors: Georges Gusdorf, Jean Piaget, John Dewey, Heinz Heckhausen, Trace Jordan, Sally A. Brown, Félix Guattari, Georges Vaideanu, Julio de Zan, Jürgen Mittelstrass, Martin Carrier, Gerhard Frey, and Ierre Delattre. One of the areas where Professor Olga Pombo, with a background in Philosophy, has developed her work is precisely Philosophy of Sciences, a field with much potential and many virtues.

Interdisciplinarity is, therefore, a serious construction – or is it something worthless and apparently without any interest? – that is important today for all areas of knowledge. Interdisciplinarity is a type of knowledge that is created and (re)constructed. In some sectors, Education has been lacking precisely a certain discourse on interdisciplinarity. It is undoubtedly preferable that someone teaches a subject or a specific type of knowledge, instead of that person being forced to engage in alleged interdisciplinarity that is useless without Culture. Culture is the lifeblood of interdisciplinarity. Actually, in a sense and to some extent, interdisciplinarity is an imperfect word for Culture. Becoming aware of that is already a key requirement for thematising and creating knowledge in an interdisciplinary way.

We consider that interdisciplinary work and interdisciplinarity provide, or may provide, very important contributions to the analysis and understanding of the Education System. Regarding the Education System, we will resort in this context to the statements we made in our book *A Filosofia como Centro do Currículo na Educação ao Longo da Vida [Philosophy as the Curriculum Centre of Lifelong Education]*,

When we talk about the education system, we clearly set us aside from a possible Hegelian perspective in which the Whole tends to dilute the particular subjects in favour of a State Logic. On the contrary, the design of the System that underlines Education values each and every one in a personalist and human perspective. The education system is neither an a priori

construction nor an absolute given. On the contrary, the education system is a living, dynamic, sometimes contradictory, but essentially plural reality. In a democratic society, the education system reflects various political, philosophical, cultural, social and economic perspectives, amongst other dimensions. It is this vitality that allows the subjects of education to always have an active and critical attitude towards the system. (Medeiros, 2005: 33).

So when we talk about the education system, we generally associate, perhaps exclusively, the concept to the school subsystem. We should clarify how we understand it and how the Education System is increasingly designed in a way that takes into consideration a broad conception of Education in a comprehensive and complex sense. For this reason, the education system comprises the school subsystem, the professional training subsystem, as well as a sense of education that occurs at all times and places, with everything and everyone and with humbleness, rigour and thoroughness. This complex and open conception of Education is full of potential and leads us to the concepts of Educational Society and Knowledge Society, which should be explored and promoted. It is this diversity and complexity that require us to get to know, to problematise and to create interdisciplinarity itself.

If accomplished, there may be, and it is essential that there is, *interdisciplinary knowledge*, which requires the command of diverse content, heuristic tools and methodologies – theoretical and practical – that enable the development of different areas of knowledge that are actually interdisciplinary and quite needed in multiple fields of human knowledge. These areas of knowledge might be useful and deployable in various professional sectors that require complementary knowledge and interdisciplinary teams in which each member has specific and transversal knowledge and in which the different fields of knowledge and specialties are respected, but without anyone judging themselves as owners of a particular area or specialty just because they hold a certain title or degree. However, holding academic degrees and titles in certain areas and/or specialties brings with it a natural demand and expectation for the (re)construction of knowledge and innovation in research, including innovative themes, content, issues, and methodologies. By its very nature, the University demands the universality of knowledge and the interconnection of the different areas of knowledge. This question requires rationality but also the intellection of connections and correlations of meanings and senses. In fact, the construction of disciplinary and interdisciplinary knowledge assumes and must assume, implicitly or explicitly, Philosophical Knowledge or Philosophy, while allowing and promoting the emergence of a General

Epistemology and other epistemologies that are often called regional. However, the practice of interconnecting knowledge should lead to what we have mentioned above, that is, to an Interdisciplinary Epistemology or even to an *Interdisciplinary and Transdisciplinary Epistemology* in a systematic and open search for knowledge. But this integral and integrated Epistemology also requires *Interdisciplinary Anthropological Education*. For us, this seems to be a fundamental point and a core element.

Education, Philosophy of Education and Philosophy lie at the heart of this paper and of its assumption of academic knowledge – and of life in general. It resorts to the contact with the source and with the spring where we also drink for inspiration and production, in order to renew and innovate, in theory and practice, Scientific Knowledge and all areas of human knowledge, including all knowledge from Nature to Culture. It is, therefore, necessary to cultivate the Search Method that Philosophy itself teaches us, as a process before it also being a product and an outcome. But the crucial element is the path. In this regard, José Ribeiro Dias's words are quite enlightening,

Philosophy triggers the process that has involved all of us over the millennia by conjugating the verbs to seek, to ask, to search, to question, to criticise, to consider, to think, from four-year olds who insist 'and why?', to students who begin the subject of Philosophy during secondary education, to experts who achieve the highest academic degree, being awarded a Ph.D. (Philosophiae Doctor), Doctor in Search of Wisdom, in the English tradition of medieval origin, regardless of the specific area: forestry, information technology, electromagnetism, social sciences or any other. And in terms of the formula received from another Anglo-Saxon tradition, we recognise that Philosophy unstoppably projects itself much further ahead, 'there are men who look at things that exist and ask *why?* I dream about things that have never existed and ask why not?' (Dias, 2005: 11)

It is curious that the Anglo-Saxon tradition, in this sense, conserves and preserves the true and full meaning of Philosophy, as it constitutes the basis and foundation of any area of knowledge if it is properly understood in its conceptual, analytical and formative work. Today the differences that separated – and still partly separate – the Anglo-Saxon philosophy and the European philosophy of Franco-German origin are more blurred. In the European continent, there has always been a very fruitful dialogue between French philosophy, or philosophy produced by French writers, and German philosophy. Such is the case of Descartes and Husserl, both mathematicians and philosophers, theorists of the Philosophy of Subjectivity. Husserl was and is considered to be the father of phenomenology but was quite inspired

by Descartes. On the other hand, we have the Anglo-Saxon tradition with philosophers like Locke and David Hume. I believe that Phenomenology, as Philosophy and as Method, is of the utmost importance not only for understanding the Human and Spiritual Sciences but also for Natural Sciences. Husserl, with the main goal of establishing and building '*Philosophy as a Science of Rigour*', opposed naturalism, historicism and psychologism. By valuing subjectivity in the construction of knowledge, he delivered a deep blow to the positivism defended by Augusto Conte. And today we know, for example with Heisenberg, that the observer's eyes change the object observed. From Heisenberg, we should always have in mind the '*uncertainty principle*'. Is there a greater principle commanding today the lives of humans, communities, peoples and areas of knowledge that are always living apart?

Phenomenology not only describes the phenomena, such as they present themselves and occur in consciousness, but also seeks their meaning and their logos. So today, everywhere and at all events, we must discover the meaning, the reasons and the foundations of what takes place and happens. Events, acts and facts are not innocent; we must uncover and scrutinise the intention that lies behind the phenomena. This is true for Education and for Human and Social Sciences, such as Politics and Political Science, Economy and Economics, Journalism and Communication Sciences, Art, amongst others.

3. Matters of Education and Interdisciplinarity – Revisiting Elements of Recent Curriculum History and Putting Them in Perspective

The recent history of education and curriculum reforms in Portugal present us with very important aspects to understand the issues of interdisciplinarity in theoretical and practical terms. One of the historical documents that must be analysed is Decree-Law No. 286/89, dated 29 August. In the introduction of this piece of legislation, we can read,

Law No. 46/86, dated 14 October, establishes the framework for the reform of the education system, with the definition of the curricula of primary and secondary education, defined under article 59 of the that law, being based on the educational objectives contained therein.

Taking into account all the proposals presented by the Commission for the Reform of the Education System and the contributions that resulted from the national debate, as well as the opinion submitted by the National Board of Education, by this law, the Government shall define the curricula of primary and secondary education.

The curriculum structure that is now approved seeks to meet the complex national and international demands that our education system faces: the construction of a project of society that, preserving our national identity, meets the challenge of modernisation that results from the integration of Portugal into the European Community.

We should remember that the *Curriculum Reform* was part of the context of a broad and deep *Education Reform*, which gave it meaning, and that the organisation and definition of the curricula aimed at a broader, nationwide Education aligned with the European and international horizon. We should emphasise the concern for the curriculum to meet the European challenges. Generally speaking, the Curriculum reforms equally sought to create interdisciplinary dynamics configured, at the time, in a ‘non-disciplinary curricular unit’ called ‘School Area’. In article 6 of the aforementioned Decree-Law, we read the following on ‘School Area’, ‘2. The non-disciplinary curricular unit aims to generate knowledge through activities and multidisciplinary projects, to promote the relationship between the school and the community, and to enhance the personal and social education of students’.

In the collective book *A Interdisciplinaridade: Reflexão e Experiência [Interdisciplinarity: Reflection and Experience]*, the authors say in the ‘Introduction’, ‘From the perspective of interdisciplinary work, we analyse some aspects of the education reform that is currently being generalised. We would like to draw your attention, in particular, to the virtues and potential of a new curriculum unit of interdisciplinary nature – *School Area*’ (Pombo, Guimarães, Levy, 1993: 5).

I know from personal experience what School Area was from the beginning, since at the time I was a secondary education teacher at the Domingos Rebelo Secondary School in Ponta Delgada in school year 1990/91. It was, back then, one of the schools selected in the country for the experimental start of the Education Reform, which was followed by a progressive generalisation.

Although there were (some) good experiences, we cannot and should not generalise, and the truth is that School Area had many difficulties in terms of receptivity in schools and its implementation was never a fact, in the sense of it having been incorporated and promoted in the school subsystem. It is, therefore, a process that I know well, both in terms of my experience as a secondary education teacher and as a professor and researcher at the university. One of the courses/curriculum units that I taught at the University of the Azores, for several years, was precisely *Curriculum Development* for students of all degrees that qualified for teaching in basic education (2nd and 3rd cycles) and Secondary Education, namely Biology/Geology,

Portuguese/English, Portuguese/French, History/Philosophy, History/Social Sciences, Mathematics. During the course/curriculum unit Curriculum Development, students, future teachers, had contact and studied the syllabuses of the subjects in which they would undertake their internship. In addition to a test, they prepared and presented papers with an interdisciplinary configuration, developing in theory and in practice the intersection and dialogue between different areas of knowledge. Moreover, while it was in force, I always included School Area as a topic to be studied in Curriculum Development. I always stated and drew the attention of the students – future teachers – to the fact that, even if School Area disappeared from the basic and secondary education curriculum, the concepts of disciplinarity, multidisciplinarity, interdisciplinarity and transdisciplinarity would always be valid and have potential. In this sense, the interdisciplinary practices of School Area could possibly be transferred to other curricular situations and contexts of the teaching and learning process. And so it was. School Area was extinguished; it was even repealed after a disappearance that we could see in reality. I knew very well the difficulties and resistance to School Area in schools and with many teachers. School Area lasted but had its days numbered. And I think that, from the time it lasted, there are no effective tools left for the development of interdisciplinary work through this methodology that has, in fact, great potential. But you need to know and to know the meta-knowledge of the different areas of knowledge; you need foundations; you need Philosophy of Education and Philosophy of Curriculum in the Training of Educators and Teachers. I have said it and demonstrated it in production, in theory and in practice.

School Area represented, at the time, a reason, an impulse, and a source of external support in which researchers interested in an interdisciplinary approach could find greater motivation for their work.

One might read Teresa Levy's words in light of this, 'It is, however, in the creation of School Area that the current reform is undoubtedly not only innovative and courageous, but also more revealing of the impact that, through the emergence of a strong tendency to curriculum integration, the current state of the different areas of knowledge exerts on educational institutions' (Levy, 1993: 22). In her text from that collective book with author texts, Teresa Levy says, 'it is not a matter of choosing between disciplinarity and interdisciplinarity. Nothing forces us to choose between the analytic and synthetic moments of the dynamic cognitive processes. It is, rather, to see the possibilities and advantages of each of them and to seek a balance that will certainly have profound implications in the culture of today and how modernity is played out. This is an issue that is, at the same time, theoretical and practical and that should concern educators, scientists and philosophers' (Levy, 1993: 31).

Following the almost simultaneously work and publication of the Basic Law on Education (Law No. 46/86, dated 14 October) and of Decree-Law No. 286/89, dated 29 August, there have been several dynamics, adjustments, reorganisations and curriculum revisions in Portugal up until today. They have reflected and demonstrated the various conceptions, tensions and logical approaches to curricular organisation, sometimes with a greater inclination and emphasis – at least rhetorically – towards interdisciplinarity or disciplinarity. Today, with the current government, which reintroduced examinations as a strong element for evaluation and classification, there is a deepening of the disciplinary logic and a focus on the so-called ‘structuring’ subjects, such as Native Language and Mathematics. Therefore, Portuguese is reinforced as one of the ‘structuring subjects’ as is the case of History. But none of this is consistent in the long term without Philosophy and without having the clear perception that Portuguese without the human element – without the issues that matter to human life – can be particularly dry. We cannot separate semantics from syntax, as we cannot separate the flesh from the bone. True knowledge and the knowledge of truth is a living body that sees and feels with the five senses and with the many more that sensitivity, intelligence and other faculties develop. The structure and the textual and intertextual structures require content(s) and subject(s), as well as subjectivity and subjectivities that create and recreate knowledge and that carry with them the rights and duties. All of this requires Knowledge with an interdisciplinary inclination.

In 2001, Decree-Law No. 6/2001, dated 18 January, was published in Portugal providing the framework for the curriculum reorganisation of basic education. One can read the following in the introduction of this legal document, ‘This reorganisation is particularly important for the consecration in the curriculum of three new non-disciplinary curriculum units, as well as for the mandatory teaching of experimental sciences, the deepening of modern language learning, the development of artistic education and education for citizenship, and the strengthening of the core curriculum in the areas of native language and mathematics’. And in Article 3 of the same decree, one can read, ‘Integration, with a cross-section nature, of education for citizenship in all curricular areas’.

Citizenship and Civics are fundamental to the development of civic consciousness that is crucial for the participation in politics and in all matters that concern us, and for the common good. Furthermore, citizenship is only and truly exercised if each one of us holds good information, serious and honest information, and knowledge in multiple areas. For this reason, Schools and Universities should practice a Citizenship of and for Knowledge, comprehensive knowledge, which allows people to make informed choices and act with great astuteness.

In article 6 of Decree-Law No. 6/2001, dated 18 January, there is an explicit reference to ‘interdisciplinary training’. ‘1. Education for citizenship, as well as the appreciation of the Portuguese language and of the human dimension of work, constitutes interdisciplinary training in the context of basic education’.

In terms of the Training of Educators and Teachers, we have assumed this great task mobilising teachers and researchers from various departments and universities nationwide. The books *Educação, Cultura(s) e Cidadania* [*Education, Culture(s) and Citizenship*] and *A Educação como Projeto: Desafios de Cidadania* [*Education as Project: Citizenship Challenges*] are durable and lasting academic reference in terms of interdisciplinarity.

So, it is essential to develop the values, including the values of knowledge itself and of knowledge as a value. No one trains or is trained without values. Throughout all education and curriculum reforms, there has always been a reference to the importance of students acquiring attitudes, skills, knowledge, expertise and values. Since the Education Reform and even before, and since the publication of the Basic Law on Education, we have always considered to be crucially important to address all of those dimensions of learning and development.

When the Bologna Process started and laws were passed accordingly, the focus was often uncritically put on skills. In this context, it is extremely important to take into consideration two pieces of legislation that have completely changed the path of education and the training processes of educators and teachers. On the one hand, we have to consider Order No. 17169/2011, dated 12 December, exclusively signed by Minister Nuno Crato. At the end of the decree, in a brief text, the legislator says,

Accordingly, I determine the following:

The document National Curriculum of Basic Education – Essential Skills ceases to be a guiding document of Basic Education in Portugal.

I immediately informed my students and those who were, at the time, undertaking their internship. We carried out an analysis and interpretation of the document – that was very clear, by the way – drawing all consequences for the training of educators and teachers. It was a moment for hermeneutic reflection and consideration that can be contextualised by the Philosophy of Curriculum. Those who are truly trained are never left without support even when faced with new legislation.

In Decree-Law No. 115/2013, dated 7 August, one can be read the following in the introduction of the legislative document,

In the preamble of Decree-Law No. 74/2006, dated 24 March, it was often mentioned the need for a ‘transition from an

education system based on the transmission of knowledge to a system based on the development of skills.

But it is wrong to devalue knowledge or to artificially oppose it to the definition of ‘skills’, by which it was supposed to be replaced or in which it would always be encompassed.

...

Knowledge, however, is central and the Basic Law on Education is unequivocal in this regard, and nothing in the Bologna Process implies the opposite conclusion.

We should note here that the legislator felt the need to correct the perspective and perception through legislation. In fact, one way or the other, there was an eclipse of knowledge in favour of the word ‘skill’. Only people with knowledge and expertise are truly skilful. There is, or there can be, serious misconceptions in University Pedagogy, which have or may have many serious and expensive consequences in the short, medium and long term. It is necessary to have a lot of university-level prudence and sapience, together with human depth, in order to contribute to make everyone greater and better from a perspective of citizenship, creating a more educated and cultivated society and more solidary Community.

It is this deep human sense that permeates the knowledge of the different areas, conferring unity to diversity and configuring interdisciplinary knowledge in a way that it may challenge, with meaning, each and every one. It is, therefore, important to note that, despite all the difficulties and obstacles, the interdisciplinary idea continues to make its way, permitting the meeting of knowledge, cultures, people, teachers, researchers and professionals from various areas. The mere presence of people from different areas affords a common goal that can be expressed by the prefix *inter*. This *inter* is not a sum but a common space where themes and issues are awoken, where concerns are shared. This idea was well expressed by Georges Gusdorf in all of his work. He states that,

...human sciences, originally few in number, have dispersed proportionally to the expansion of the epistemological space. Caught in the trap of their specialised technicalities, they have become more and more sciences and less and less human sciences, losing on the way the intention of humanity that initially guided them. Hence the need to rethink the degradation of the epistemological energy and to regroup what analysis has dissociated.

This is called *interdisciplinarity*. (Gusdorf, 2006: 18).

The author Georges Gusdorf developed what he called the ‘theory of the sets of knowledge’ and the ‘theory of cultural sets’ to develop intelligibility and cultural dynamics. At a time of crisis, of crisis of so many

crises, it is necessary for human beings to recover energy of significance and to be able to (re)build new rescue paths in economy of education and culture. We have to learn new things to enhance knowledge.

Another author who has long discussed and developed interdisciplinarity is Edgar Morin. He has two very significant books in this context: *La Tête Bien Faite. Repenser la réforme. Réformer la pensée* and *Les sept savoirs nécessaires à l'Éducation du Futur*. For the Education of the future, Edgar Morin challenges us to face 'the blindness of knowledge', to master 'the principles of relevant knowledge', 'to teach the human condition', 'to teach the terrestrial identity', 'to face the uncertainties', 'to teach thoughtfulness', and to develop the sense of an 'ethical approach to mankind'. These are all tasks and challenges of enormous complexity. And it is precisely to know how to deal with the complexity that we also have to develop and practice interdisciplinarity. Actually, Edgar Morin talks about the concept of 'inter-poly-disciplinarity'. The author equally criticises and demonstrates the shortcomings of 'hyperspecialisation'. He states,

There is an increasingly broader, deep and severe inadequacy between our separate and partitioned areas of knowledge compartmentalised by disciplines and, on the other hand, the realities or problems that are increasingly multidisciplinary, interrelated, global, and planetary.

In this situation, the following becomes invisible:

- Large complexes;
- Interactions and retroactions between the parts and the whole;
- Multidisciplinary entities;
- Essential problems.

And he synthesises accordingly, 'The essential problems are never fragmented and the global problems are increasingly essential' (Morin, 2002: 13). With great accuracy, Edgar Morin revisits a name leading to a culture of complexity and astuteness by stating, 'The first purpose of teaching formulated by Montaigne: it is better to have a well cultivated head than a well stuffed head' (Morin, 2002: 23).

Education is an interdisciplinary field that requires great astuteness and clarity, always trying to decipher what is essential and fundamental to the life of every person, every community and every people, and for humanity.

Education must, first and foremost, properly train each and every person, as individuals, as citizens and as (future) professionals. Will there be interdisciplinary Knowledge and Wisdom to carry out this urgent task?

Note: We translated all quotes to English from the original.

References:

Works cited

Crato, Nuno (2006). (Org.) *Rómulo de Carvalho. Ser Professor*. Lisboa: Gradiva.

Dias, José Ribeiro (2005). Prefácio. In Medeiros, Emanuel Oliveira (2005). *A Filosofia como Centro do Currículo na Educação ao Longo da Vida*. Lisboa: Instituto Piaget.

Medeiros, Emanuel Oliveira (2005). *A Filosofia como Centro do Currículo na Educação ao Longo da Vida*. Lisboa: Instituto Piaget.

Pires, Machado Pires (2015). *Memórias e Reflexões*. Ponta Delgada: Letras Lavadas.

Pombo, Olga; Guimarães, Henrique Manuel; Levy, Teresa (2006). (Organização de). *Interdisciplinaridade. Antologia*. Lisboa: Campo das Letras.

Pombo, Olga; Guimarães, Henrique Manuel; Levy, Teresa (1993). *A Interdisciplinaridade. Reflexão e Experiência*. Lisboa: Texto Editora. [com “Introdução” comum aos três autores e textos individuais, autorais].

Bibliography

Medeiros, Emanuel Oliveira (2010) (Coord.). *A Educação como Projeto: Desafios de Cidadania*. Lisboa: Instituto Piaget.

Medeiros, Emanuel Oliveira (2009). *Educação, Cultura(s) e Cidadania*. Porto: Edições Afrontamento.

Ministério da Educação/Departamento do Ensino Secundário (1998). *Conferência Internacional. Projetar o Futuro: Políticas, Currículos e Práticas*. Lisboa.

Ministério da Educação/Departamento do Ensino Secundário (1998). *O Ensino Secundário em Debate. Análise das Consultas aos Parceiros Educativos*. Lisboa.

Ministério da Educação/Departamento do Ensino Secundário (1999). *O Ensino Secundário em Debate. Ciclo de Conferências/Comunicações*. Lisboa.

Carvalho, Rómulo de (2011). *Rómulo de Carvalho.[Memórias]*. Lisboa: Fundação Calouste Gulbenkian. 2ª Edição.

Legislation

Assembleia da República. Lei nº 49/2006, de 30 de Agosto. Segunda alteração à Lei de Bases do Sistema Educativo e primeira alteração à Lei de Bases do Financiamento do Ensino Superior. *Diário da República*, I Série A, Nº 166 – 30 de Agosto de 2005.

Assembleia da República. Lei nº 46/86, de 14 de Outubro, Lei de Bases do Sistema Educativo, *Diário da República*, I Série, nº 237.

Ministério da Educação e Ciência. Decreto-Lei nº 115/2013, de 7 de Agosto. *Diário da República*, 1ª Série – nº 151 de agosto de 2013.

Ministério da Educação. Decreto-Lei nº 6/2001, de 18 de janeiro, nº 15 – 18 de janeiro de 2001, *Diário da República*, I Série – A Nº 15 – 18 de janeiro de 2001.

Ministério da Educação, Gabinete do Ministro. Despacho nº 17169/2011, assinado pelo Ministro da Educação e Ciência, *Nuno Paulo de Sousa Arrobas Crato*, com data de 12 de Dezembro de 2011.

Ministério da Educação (1989). Decreto Lei nº 286/89, de 29 de agosto. *Diário da República* – I Série, nº 198 – 29 – 8 – 1989. (no qual está definida a Reforma Curricular, no contexto da Reforma Educativa em Portugal).