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Cultivating intelligence in adolescence

Introduction: Cultivating intelligence in adolescence

Ortega y Gasset said that the excellent man is one who makes great demands on himself, and we should also note that school is where most people when starting out in life learn to make demands on themselves as it is where we start to discover that we are not princes of the world nor riotous people on whom the Graces always smile. However, schools are not unaffected by the social environment in which they operate, and nowadays it is clear that we live in an atmosphere of egalitarianism, in which excellence tends to be frowned upon and of sentimentalism, to the extent that arranging a lecture warning of the bad consequences of drugs becomes a risk, lest a student who is the child of a drugs lord who is currently in prison has their feelings hurt. In addition, society is no longer interested in truth and veracity, so that post-truth and lies run free and what is truly dominant is not knowledge but money, or, at least, welfare guaranteed by the state, even if this leads to generalised mediocrity or a reduction in civil liberties.

The harmful effects of this ideological trend are devastating, especially for people growing up in levels of society with little interest in culture. There is no doubt that confronting dominant forces is not a simple task but nobody with a vocation to educate should shrug their shoulders; instead they must ask themselves what to do so that new generations do not make these mistakes. This question is especially relevant for those with the greatest connection to adolescents as the period between the ages of 12 and 18 is very important in shaping the personality.

This monographic issue of the **revista española de pedagogía** presents works that reflect on the content of the most important lessons at these ages, offering guidance on how to teach in a way that promotes the cultivation of intelligence, that does not ignore the cultivation of memory in favour of rote learning, as we stand on the shoulders of

giants, something that enables us to advance knowledge and also facilitate social mobility by obtaining qualifications.

Indeed, T. S. Eliot, in some well-known verses, said: "Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?" There is an urgent need to fight the easy temptation to stick to memorising data, without considering reality in all its depth. Millán-Puelles noted that human beings ask about the what of things, and this should not be answered by saying that we will understand it when we see them. Indeed, seeing is a first step, but we want to advance and understand the most profound nature of things by using intelligence, which some describe as the ability to *intus-legere*, to read the interior of what we see.

Therefore, this monographic issue considers the cultivation of intelligence from a wide range of focusses, including cognitive, emotional, aesthetic, moral, religious, sex education, physical education and more, and does not limit itself to education at school but also considers the responsibilities of the family. It could be said that it complies with the objective of offering a broad and diverse outlook on the subject, analysing and scrutinising it in detail, casting pedagogical light on its different dimensions, and opening up new perspectives for educational research and action. At the same time, it is worth noting that the 17 authors involved, who work in nine different educational institutions, do not shy away from tackling difficult questions that merit debate, relating to both the academic sphere and to the characteristics of a democratic society. Therefore, in their many voices, we as editors have endeavoured to address some of the most notable challenges that pedagogy can currently pose, the study of which is unlikely to result in *the one best solution*.

This issue starts with an article by Joseph Renzulli, who provides the theoretical underpinnings of and develops various practical ideas relating to *Enrichment Clusters* in schools. He defines these as spaces centred on an inductive and investigative learning process, characterised by being highly demanding, which result in a high level of learning and confronting relevant current real problems. His proposal stands in contrast to a context in which various factors have led to excessively prescriptive classes, stifling both the creativity of the teachers and the flame of self-discovery and the excitement of the search in the students. This professor from the University of Connecticut understands that intellectual development cannot be based solely on the transfer of content decided by educational authorities and its evaluation through traditional exams, but that, without disregarding these activities, it must be balanced with other types of action that enable teachers and students to express themselves and show initiative in such a way that their own judgement becomes relevant. Questions such as ones about the very democratic way of life of our societies, Renzulli claims, will only be possible if schools, particularly ones located in areas with fewer cultural and economic resources, cultivate these types

of capacities, which are linked to creativity, innovation, initiative, and individual and collaborative enterprise, and which enable the formation of a significant number of citizens from different social classes who are capable of leading their own communities.

This first article, which advises on the criteria that should be present in any teaching, is followed by ten works set out analogically following the traditional order of classical education. And so this issue continues with a work on teaching philosophy and the cultivation of intelligence. Its author, José Antonio Ibáñez-Martín, introduced the concepts of critical thinking and indoctrination to the world of education in Spain, and now presents a new work from an innovative position.

Luis Arenal, the Head of Baccalaureate at the Colegio Tajamar in Madrid, provides an original work in which he explores the causes of the gradual disappearance of classical Greco-Latin languages and cultures from the curriculum, something that, in his view, is not unconnected to the greater importance given to the context over the text, which thus confuses means and ends. In effect, while many people tend to praise the classics in public, this author notes that few of them actually read them, and many of those who do seem not to discern the profound values that have made these particular works merit the title of lasting and timeless classics. History and grammar are not the main lessons the classics can offer us, according to Arenal. Instead these are only the means or tools that enable us to discover the meanings underlying them and so avoid misreadings, and so it does not make sense to fall short in studying them, thus restricting the immense depth of the potential lessons in these works. In accordance with this starting point, he proposes a plan for gradual, reflexive reading with clear objectives and the necessary strategies for students to be able to access the texts. And this access will be easier and more sustainable over time when we are able to present relevant meanings that are can be meaningful to adolescents, beyond the simplistic memorisation of names and dates. The author has long experience of how adolescents from all social settings are enraptured by classical texts, when they are well taught.

Fernando Blasco, from the Universidad Politécnica de Madrid, considers the capacity of mathematics for fostering thought, reasoning, and problem solving in an article that suggests innovative, motivational, and interdisciplinary ideas for the mathematics classroom. In human curiosity he discerns the impulse to solve problems understood in the broad sense, which encompass different areas and do not always have one single solution. He sets out the educational interest of what he describes as recreational mathematics, as well as making various proposals aimed at gifted and talented students aged between 6 and 18 that link this discipline to others of a more artistic nature and to situations in everyday life that also require communicative, instrumental, or, we could say, *performative* capacities. The heart of the question raised by this author is also the cornerstone of reasoning, of enquiry into the reasons that explain mathemat-

ical enigmas, that must accompany the entertaining, mysterious, and magical component of the teaching activity.

Next, Juan Luis Fuentes, from the Universidad Complutense de Madrid, suggests that we conceive awe as a classical emotion that can make important contributions to current education and, more specifically to the path to accessing wisdom. After defining concepts, the author explains some pre-conditions for awe to be possible in a context where the capacity to be surprised is challenged, as everything tends to be presented as expected thanks to technological advances. These conditions direct us to a necessary attitude of humility, to exercise of gratitude, to careful observation of surroundings, or to discovery of the value within the self, avoiding instrumentalisation and narrow visions of utility. Finally, he proposes three lines of action that invite people to discover what is good, beautiful, and true, a different, more profound and calm view of natural surroundings, and an adaptation of vital rhythms, especially in the most important areas for human existence, including education.

Alberto Campo Baeza, an Academician of the Real Academia de Bellas Artes de San Fernando and architect who is recognised in all international forums, proposes a manifesto for beauty in the educational system. Without it, he categorically and clearly states, life loses its value to the point that is not worth living. This raises the question of who has the chance to access beauty, to which he responds that this privilege is available to everyone in a wide variety of ways, in very different times and very varied places. At the same time, he defends the ability of the fine arts, poetry, music, painting, philosophy, as field that exceptionally possess beauty, to cultivate the intelligence of children and young people, whom we must enable to immerse themselves fully in this activity, when they write a poem, when they sing with enthusiasm, when they draw and think with their hands, or when they understand a philosophical truth intrinsically linked to beauty.

For their part, Rafael Bisquerra and Èlia López-Cassà from the Universidad de Barcelona, focus on the intersection between intelligence and emotions. Delving deeper into the line of a long tradition of study of emotional intelligence, and after the first sections, which are dedicated to conceptual delimitation and to distinguishing related areas, the authors consider the place of moral emotions in secondary education, within emotional education. As they note, these emotions motivate moral action, and it is precisely in adolescence, owing to the explosion of emotions in the individuals and their peers of the same age, that the greatest attention is needed from educators to facilitate their correct development. In addition, their reflections on the emotional dimension of moral education are of special interest, as they leave behind the excessively rationalist focus of the 20th century, making way for a new perspective in which *felt values* have a special place as they are a mechanism that enables consistency between conduct and thought. In the

last part, they make some practical recommendations with a significant connection to the position of teachers as role models in this sphere: the reinforcement of empathy, especially in diverse settings, the moral elevation produced by admiring acts of high value, and the systematisation of this process in three steps, namely, re-evaluation, imagination, and the decision to follow admirable moral behaviours.

David Reyero considers an area that is as important and delicate as it is necessary in integral education, namely studying the sexual dimension of the person. The rigour with which he approaches this complex issue and the depth with which he evaluates some current responses to this topic that are more politically correct than actually correct is laudable. One especially interesting idea he poses is the impossibility of providing a real education that starts from the dominant philosophies of suspicion and mistrust, as in the case of a certain critical pedagogy in the educational sphere, which holds that rules are no more than an illegitimate attempt at external domination and control, the result of which would automatically be an oppressive relationship, in view of which it would only be possible to admire what is original or identify errors in any proposal made, without any hope of finding something of value for leading a good life. This professor from the Universidad Complutense also explains how the lack of a teleological focus on the human being that includes, as is logical, the sexual life, pushes young people into an exclusively biological, superficial, and instrumentalising sexuality that is unable to comprehend the relational, communicative, reproductive, and intimate character of this human dimension. The complexity of this matter means it cannot be approached from a perspective that could be classed as puritanical, in the sense of being simplistic, banal, and based exclusively on abstinence, nor in the sense of unwanted consequences, but that it involves deeper elements of human affect and the meaning of sexuality that disciplines such as evolutionary psychology are incapable of understanding. Finally, the article proposes using a *substantive ethics* as a reference point that enables human beings to interpret themselves in reference frameworks that guide them towards a good life and which incorporate a language with a greater anthropological density.

The next article considers the contributions that the teaching of Christianity can make to intelligence, which inevitably involves considering that following Jesus is much more than just following a set of moral rules. Ramiro Pellitero, from the Universidad de Navarra, argues for the importance of intellectual capacities in knowledge of good and of God and their necessary harmony with other dimensions of the person, such as volitional, relational, and transcendental ones. On these lines, he shows the need to establish dialogues between faith, reason, ethics, and culture, as aspects that not only contradict one another but also feed back into each other: a lived, non-individualistic faith, linked to love; an expanded reason open to all of reality and to the big questions, which is not reduced to the experimental; an ethics that can support religion in the correct interpretation of the good of people; and a culture that refers to the wisdom of tradition and of

the community. In the second part of the article, he champions the role of theology in transdisciplinary knowledge and in practical wisdom, where its social function stands out, something that should be compatible with a religious teaching that is attractive owing to the beauty of its content, while at the same time being clear and adapted to the particular circumstances of the students.

The article by M. del Rosario González Martín, Gonzalo Jover, and Alba Torrego, from the Universidad Complutense de Madrid, analyses language as a vehicle for knowledge and for expressing reality, and more specifically its transformation owing to technological mediation in the stage of adolescence and in three distinct spaces, namely the private setting of the home, the school, and the public space of the city. At home, language makes it possible to shape habits and cultivate interiority, through the cultivation of a language that inhabits the home and social media, that is shared with all of the members of the family, where adolescents relate to older people in a space where they feel more comfortable, which, at the same time, rejuvenates the adults. In school, the authors underline the learning of the configuration of a larger us, in which the young person is one more person, where they learn order, systematisation, reasoning, and communication. And thirdly, they highlight participation in other forums, ones that are not part of the close settings, many of them digital, that help outline the adolescent's identity and foster social participation, despite some contradictory and homogenising effects from virtual settings.

Finally, the team from the Universidad de Jaén comprising Alberto Ruiz-Ariza, Sara Suárez-Manzano, Sebastián López-Serrano, and Emilio J. Martínez-López studies physical activity and its relationship with the promotion of intelligence. This vindicatory and propositional article describes different didactic possibilities for intellectual development through physical exercise, which will undoubtedly be of interest for teachers in secondary education. Starting from the peripatetic experience of the Aristotelian school and the schools of other great philosophers, as well as from research done in recent decades, they claim that corporal movement is a stimulus for the general exercise of intellectual capacities, such as attention, concentration, information processing, memory, creativity, and ultimately learning, and also of specific capacities linked to certain subjects. Consequently, they propose an integral vision of physical education classes, where transversality and the hybridisation of content from different subjects, take precedence, transcending the organisation of content into sealed units; promotion of physical activity prior to the school day linked with active travel to the school; turning breaks, especially recess, into active periods that significantly disrupt the sedentariness of the classes; introducing physical activities into the ordinary classroom, as they regard corporal expression as contributing to learning and containing an important motivating power. These are interesting proposals that might entail a review of current curriculum designs.

With the **revista española de pedagogía** on the threshold of becoming an octogenarian publication, we would sincerely like to thank all of the authors and reviewers for their participation in this monographic issue, in particular those who, while their teaching and research is not normally in the field of pedagogy, have dedicated their time and work to create a multidisciplinary issue that we trust will be of interest to our habitual readers and for whom, even if they are not from the sphere of the university, work with passion and dedication every day to cultivate their students' intelligence, along with other human dimensions.

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Professor. Universidad Internacional de La Rioja

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Editors

The teacher's role in developing higher level thinking skills in young people

El papel del profesor en el desarrollo de habilidades cognitivas complejas en personas jóvenes

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Abstract:

This article provides a rationale and practical set of guidelines for enrichment clusters, a program that supports a different brand of learning from the deductive and prescriptive approach that dominates activities in so many of today's classrooms. Enrichment clusters are interest-based and student-centric, and provide a space for inductive, investigative high-end learning that can fit into any school program. This article describes the learning theories and goals that guided the development of enrichment clusters and describes in detail the meaning of *high-end learning* and *real problems*. Also discussed are results from studies of Enrichment Cluster implementations regarding the specific learning outcomes that students demonstrated and teachers observed, which include: problem finding and focusing, determining the relevance and bias of found information, planning and sequencing, metacognition, argumentation, problem solving, communication, collaboration, and evaluating data for patterns and discrepancies. This approach has been adopted in thousands of schools around the world and it seeks to develop gifted behaviours in larger numbers of students than most programs that focus only on high IQ students.

Keywords: higher level thinking skills, enrichment, inductive learning, student-centred, authentic learning, learning theory.

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Resumen

Este artículo ofrece una base teórica y un conjunto de directrices prácticas para los grupos de enriquecimiento (*Enrichment Clusters*), un programa que defiende un tipo de aprendizaje distinto al del enfoque deductivo y prescriptivo que gobierna las actividades en tantas aulas hoy en día. Los grupos de enriquecimiento están basados en los intereses y centrados en el alumno, y proporcionan un espacio para el aprendizaje de alto nivel inductivo e investigador que puede integrarse en cualquier programa escolar. Este artículo describe las teorías del aprendizaje y los objetivos que han guiado el desarrollo de los grupos de enriquecimiento y explica en detalle el significado del aprendizaje de alto nivel (*high-end learning*) y de los problemas reales. También se discuten los hallazgos de los estudios sobre aplicaciones de los grupos de enriquecimiento en relación con los resultados específicos del aprendizaje demostrados por los alumnos y observados por los profesores, que incluyen: búsqueda y focalización de problemas, determinación de la relevancia y los sesgos de la información encontrada, planificación y secuenciación de tareas, metacognición, argumentación, resolución de problemas, comunicación, colaboración y evaluación de datos para identificar patrones y discrepancias.

Este enfoque ha sido adoptado en miles de centros educativos de todo el mundo y busca desarrollar comportamientos dotados (*gifted behaviours*) en un mayor número de alumnos que la mayoría de los programas centrados únicamente en alumnos con un cociente intelectual alto.

Descriptores: habilidades cognitivas complejas, enriquecimiento, aprendizaje inductivo, centrado en el alumno, aprendizaje auténtico, teoría del aprendizaje.

Suddenly I remembered why I had gone into teaching in the first place. I had forgotten, and I didn't even know I had forgotten. Then I remembered what I had always thought teaching would be all about.

Middle school teacher in the Enrichment Cluster Research Project

1. Introduction

Most teachers have had, at some point, a vision about what they thought teaching would be all about. They pictured themselves in classrooms with interested and excited students listening in rapt attention to fascinating tales about dangerous midnight movements on the Underground Railroad. They envisioned young people eagerly gathered around a science table discovering the mysteries of how things work or experiencing the «Aha!» that occurs when the relationships between a set of numbers starts to make sense. And they saw in their mind's eye a child's joy when hearing praise for a creative story or science project, eager to work in suggestions for making the project even better. And the most visionary prospective teachers

fantasised about the letter or phone call from a former student saying that a play she wrote was going into production, and it all started when she was a student in the teacher's creative writing class so many years ago.

For many teachers, there is a disconnect between their vision of a challenging and rewarding career and the day-to-day grind so rampant throughout the profession. Perhaps most ironic about the separation between the ideal and the reality of today's classrooms is that most teachers have the skills and motivation to do the kinds of teaching about which they once dreamed. Unfortunately, standards, pacing calendars, regulations, paperwork, and other requirements that are imposed upon them «from above» have resulted in both a prescriptive approach to teaching and a barrier to creating a challenging and exciting classroom. Over-prescribing the work of teachers has, in some cases, lobotomised good teachers and denied them the creative teaching opportunities that attracted them to the profession in the first place. Darling-Hammond (2004) reported that most teachers felt their views of good teaching were at odds with those of their school districts. Seventy-nine percent of the teachers indicated that concerns for children and for learning are central to good teaching, but only 11% said that their school district shared this view. A large majority of teachers (75%) believed that their school officials favoured behaviourist theories of learning rather than theories that are more child centred and constructivist.

This article provides a rationale and practical set of guidelines for a program that supports a different brand of learning from the approach that guides activities in many classrooms today. We call this brand «student-driven learning» and the vehicles designed to deliver this more creative method of teaching are enrichment clusters. Enrichment clusters are student-centred — directed by student interests and the development of authentic products for real audiences — and are based on both common sense and research that challenges the assertion that important intellectual growth can only be charted through an information transfer and a standardised testing approach to education (Gentry, Moran, & Reis, 1999; Reis, Gentry, & Maxfield, 1998; Renzulli, Gentry, & Reis, 2004, 2014). We do not think that all prescribed, textbook-driven, standards-based teaching is bad, nor do we criticise the current movement in the United States to improve the achievement test scores of our nation's young people. We believe that a good education *balances* a prescribed curriculum with regular, systematic opportunities to allow students to develop their abilities and interests using preferred modes of learning. This balance must be achieved in an atmosphere that places a premium on enjoyment and collaboration as well as opportunities to engage in first-hand investigative activities and high levels of creative productivity. Even within the current trend toward an externally determined, «top-down» curriculum, teachers must have some opportunities to teach in a manner that is more consistent with the ideals that attracted them to the profes-

sion. As one teacher put it, «I am tired of being the administrator of a textbook and the victim of a system that fails to recognise my talents and creativity. Enrichment clusters gave me the opportunity to do some *real teaching*.»

The main purpose for developing an enrichment cluster program is to create a time and a place within the school week when student-driven learning is on the front burner of student and teacher activity. Although we would like to see more of this type of learning infused into the overall curriculum, the external forces that dominate most schools are simply too powerful to bring about massive, immediate change. Educational change seldom takes place at the centre of things; instead, it evolves on the fringes where dedicated people exercise their judgment in the best interest of serving the young people for whom they are responsible. And successful change occurring on the edges has been found to seep its way toward the centre. In the research we conducted on enrichment clusters, we found that many of the strategies teachers used to facilitate enrichment clusters found their way into everyday teaching practices in regular classrooms. Through strategies such as creative compliance and the infiltrator model of school change, we have witnessed remarkable changes taking place in mainstream classrooms.

2. Why student-driven learning is important for our schools

Student-driven learning is based on an inductive approach to learning that provides students with opportunities to apply and extend the basic knowledge and skills that are the legitimate outcomes of a deductive learning model. Our aim is not to do away with deductive learning but, instead, to achieve balance between deductive and inductive learning. Introducing inductive learning into the school is important for several reasons. First, schools should be enjoyable places that students want to attend rather than places they endure as part of their journey toward assimilation into the job market and the adult world. Second, schools should be places in which students participate and prepare for intelligent, creative, and effective living. This type of living includes learning how to analyse, criticise, and select from alternative sources of information and courses of action; how to think effectively about unpredictable personal and interpersonal problems; how to live harmoniously with one another while remaining true to an emerging personal system of attitudes, beliefs, and values; and how to confront, clarify, and act upon problems and situations in constructive and creative ways.

All of America knows that there are two school systems in our nation. One school system —the one that serves poor and mainly minority students— has generally failed to make the kind of progress that leads to improved achievement, progression into higher education, and improved standards of living. Billions of dollars and massive reform efforts aimed at addressing the

problem of poor schools have focused largely on compensatory and remedial models. Most would agree that the positive results of these school reform efforts have ranged from minimal to nonexistent.

America's other school system — the one that serves mainly middle-class white students — has, by contrast, been successful enough to produce one of the most affluent and productive societies in the history of the world. Herein lies the problem: Endless state regulations, overly prescribed curriculum, and horrendous pressures to «get the scores up» have caused both school systems to buy into using more and more highly prescriptive didactic models of teaching. As a result, schools continue to withhold high level learning opportunities from poor children, and they are now slowly dismantling those aspects of our successful schools that have contributed to our nation's inventiveness, entrepreneurship, and creative productivity.

Student-driven learning is important because our society's economic and cultural growth, even our democratic way of life, depend on an unlimited reservoir of creative and effective people. One idea for a new product or the innovative and entrepreneurial action that results in the start of a new business has the potential to create millions of jobs or cultural enrichments that contribute to a better way of life for untold numbers of Americans. A small number of individuals will always emerge as creative thinkers and problem solvers, but we as a society cannot afford to leave the emergence of such leaders to chance, nor can we waste the undeveloped talents of so many of our young citizens who are the victims of poverty. All students must have opportunities to develop their unique talents and potentials and to lead constructive lives without trampling on or minimising the value of others in the process. We have no argument with the importance of basic skill learning, but without an equal investment in the teaching and learning that promotes talent development, leadership, and creative productivity, our society may unwittingly be letting our schools devolve into the kind of education system that resembles a third world country.

3. Learning Theory 101: the short course

Every teacher remembers taking a course in educational psychology in which they devoted a good portion of time to various theories of learning. Informal surveys with hundreds of teachers, however, reveal that very few remember much about these theories; and in most cases, if they do, they see little relevance between what was covered in the course and the work they do in classrooms. However, a couple of ideas about learning theory from those courses are very relevant, and we will focus on those few points.[1]

So, let us begin Learning Theory 101. All learning exists on a continuum ranging from deductive or didactic approaches

at one end to inductive or constructive approaches at the other. This continuum exists for learners of all ages — from toddlers to doctoral students — and it exists in all areas of curricular activity. The continuum also exists for learning that takes place in the nonschool world, the kind that young people and adults pursue as they go about acquiring new skills for their jobs or hobbies (there are, of course, occasions when a particular approach falls between the two ends of the continuum; however, for purposes of clarifying the main features of deductive and inductive learning, we will treat the two models as polar opposites.) Both models of learning and teaching are valuable in the overall process of schooling, and a well-balanced school program must make use of basic and high-end approaches as well as the combined approaches between the two ends of the continuum.

4. The deductive model of learning

Although many names have been used to describe the theories that define the ends of the continuum, we simply refer to them as the Deductive Model and the Inductive Model. The Deductive Model is familiar to most educators and guides most of what takes place in classrooms and other places where formal learning is pursued; its basic assumption is that current learning will have transfer value for some future problem, course, occupational pursuit, or life activity. The Inductive Model, on the other hand, represents the kind of learning that typically takes place outside formal school situations. A good way to understand the difference between these two types of learning is to compare how learning takes place in a typical classroom with how someone learns new material or skills in real-world situations.

Deductive learning is based mainly on the factory model or human engineering conception of schooling. The underlying psychological theory is behaviourism, and the theorists most frequently associated with this model are Ivan Pavlov, E. L. Thorndike, and B. F. Skinner. At the centre of this ideology is the ability to produce desirable responses by presenting selected stimuli. In an educational setting, these theories translate into a form of structured training for purposes of knowledge and skill acquisition. Consider how most classrooms are characterised by relatively fixed time schedules, segmented subjects or topics, predetermined sets of information and activities, tests and grades to determine progress, and a pattern of organisation that is largely driven by the need to acquire and assimilate information and skills that are deemed important by curriculum developers, textbook publishers, and committees who prepare lists of standards. A curriculum based on the Deductive Model must be examined in terms of both what and how something is taught. The issue of what is (or should be) taught has always been the subject of controversy, ranging from a conservative position that emphasises a classical or basic education curriculum to a more

liberal perspective that includes contemporary knowledge and life adjustment experiences (e.g., driver's education, sex education, computer literacy). Overall, American schools have been very effective in adapting what is taught to changes taking place in society. Recent concerns about the kinds of skills that a rapidly changing job market will require have accelerated curricular changes that prepare students for careers in technological fields and a post-industrial society. Nowhere is this change more evident than in the emphasis currently placed on thinking skills, interdisciplinary approaches to curriculum, and the use of technology in the learning process. These changes are favourable developments, but the Deductive Model still limits learning because it *restricts* both what is taught and how the material is taught.

Although most schools have introduced teaching techniques that go beyond traditional drill and practice, the predominant instructional model continues to be a prescribed and presented approach to learning. The textbook, curriculum guide, or lists of standards prescribe what is to be taught, and the material is presented to students in a predetermined, linear, and sequential manner. Educators have become more clever and imaginative in escaping the restrictiveness of highly structured deductive models, and it is not uncommon to see teachers using approaches such as discovery learning, simulations, cooperative learning, inquiry training, problem-based learning, and concept learning. More recent approaches include simulated problem solving through interactive computer technology. Some of these approaches certainly make learning more active and enjoyable than traditional, content-based deductive learning, but the bottom line is that there are certain predetermined bodies of information and thinking processes that students are expected to acquire. The instructional effects of the Deductive Model are those directly achieved by leading the learner in prescribed directions. As indicated above, there is nothing inherently «wrong» with the Deductive Model; however, it is based on a limited conception of the role of the learner. It fails to consider variations in interests and learning styles, and it always places students in the roles of lesson learners and exercise doers rather than authentic, first-hand inquirers.

5. The Inductive Model of learning

The Inductive Model, on the other hand, represents the kinds of learning that ordinarily occurs outside formal classrooms in places such as research laboratories, artists' studios and theatres, film and video production sets, business offices, service agencies, and almost any extracurricular activity in which products, performances, or services are pursued. The names most closely associated with inductive learning are John Dewey, Maria Montessori, and Jerome Bruner. The type of learning advocated by these theorists can be summarised as knowl-

edge and skill acquisition gained from investigative and creative activities that are characterised by three requirements. First, there is a personalisation of the topic or problem the students are doing the work because they want to. Second, students are using methods of investigation or creative production that approximate the *modus operandi* of the practicing professional, even if the methodology is at a more junior level than that used by adult researchers, film makers, or business entrepreneurs. Third, the work is always geared toward the creation of a product or service that is intended to have an impact on a particular audience. The information (content) and the skills (process) that are the substance of inductive learning situations are based on need-to-know and need-to-do requirements.

For example, if a group of students is interested in examining differences in attitudes toward dress codes or teenage dating between and within various groups (e.g., gender, grade, students vs. adults), they need certain background information. What have other studies on these topics revealed? Are there any national trends? Have other countries examined dress code or teenage dating issues? Where can these studies be found? Students will need to learn how to design authentic questionnaires, rating scales, and interview schedules and how to record, analyse, and report their findings in the most appropriate format (e.g., written, statistical, graphic, oral, dramatised). Finally, they will need to know how to identify potentially interested audiences, the most appropriate presentation formats (based on a particular audience's level of comprehension), and how to open doors for publication and presentation opportunities. This example demonstrates how knowledge and skills that might otherwise be considered trivial or unimportant become instantaneously relevant because they are necessary to prepare a high-quality product. All resources, information, schedules, and sequences of events are directed toward this goal, and evaluation (rather than grading) is a function of the quality of the product or service as viewed through the eyes of a client, consumer, or other type of audience member. Everything that results in learning in a research laboratory, for example, is for present use. Therefore, looking up new information, conducting an experiment, analysing results, or preparing a report is focused primarily on the present rather than the future. Even the amount of time devoted to a particular project cannot be determined in advance because the nature of the problem and the unknown obstacles that might be encountered prevent rigid, predetermined schedules.

6. Learning Theory 101 summarised

The Deductive Model has dominated the ways in which most formal education is pursued, and the track record of the model has been less than impressive. One need only reflect for a moment on his or her own school experience to realise that with the exception of basic

language and arithmetic, much of the compartmentalised material learned for some remote and ambiguous future situation is seldom used in the conduct of daily activities. The names of famous generals, geometric formulas, the periodic table, and parts of a plant learned outside an applicable, real-world situation are usually quickly forgotten. This is not to say that previously learned information is unimportant, but its relevancy, meaningfulness, and endurance for future use is minimised when it is almost always learned apart from situations that have personalised meaning for the learner.

Inductive learning, on the other hand, focuses on the *present use* of content and processes as a way of integrating material and thinking skills into the more enduring structure of the learner's repertoire. It is these more enduring structures that have the greatest amount of transfer value for future use. When content and processes are learned in authentic, contextual situations, they result in more meaningful uses of information and problem-solving strategies than the learning that takes place in artificial, preparation-for-the-test situations. If individuals involved in inductive learning experiences receive some choice in the domains and activities in which they are engaged and if the experiences are directed toward realistic and personalised goals, this type of learning creates its own relevancy and meaningfulness.

If people do, in fact, learn important content and skills outside of formal classroom situations, then it is important to examine the dimensions of this type of learning and the ways in which real-world learning can be brought into the school. However, bringing anything new into the school can be tricky business. The track record in this regard has been one of over structuring and institutionalising even the most innovative approaches to learning. Many educators can remember how the much heralded concept of Discovery Learning ended up being what one teacher called «sneaky telling» and how a focus on thinking skills and creative thinking fell prey to the same types of formulas and prescribed activities that characterised the content-based curriculum that has been criticised so strongly by thinking skills advocates. Even the present fascination with computers and online learning is in some cases turning out to be little more than tutoring with electronic worksheets. But if we, as educators, can learn to view the Internet and other media as a vast treasure chest of categorical and searchable information that can be sought out on a need-to-know basis, then we will begin to tap the true value of this resource for inductive learning experiences.

7. Student-driven learning

To understand the essence of student-driven learning is to compare how learning takes place in a traditional classroom with how someone might learn new material or skills in real-world situations. The majority of classrooms are characterised by an organisational

pattern largely driven by the need to acquire and assimilate information and skills imposed from *outside* the classroom. Contrast this type of learning with the more natural chain of events that takes place in research laboratories, business offices, or film studios. In these situations, the goal is to create a product or service. All resources, information, schedules, and events are directed toward this goal, and looking up new information, conducting experiments, analysing results, or preparing a report are activities focused primarily on the *present need* for information rather than for a distant future. It is these present uses that have the greatest amount of transfer value for future use. When content and processes are learned in authentic, contextual situations, they result in more meaningful uses of information and problem-solving strategies than the learning that takes place in overly structured, prescribed classroom situations. In short, student-driven learning applies two concepts — (1) high-end learning and (2) the often used (and abused) concept, real-world problems — to the Inductive Model of Learning.

8. High-end learning defined

High-end learning is based on the ideas of a small number of philosophers, theorists, and researchers (e.g., John Dewey, Albert Bandura, Howard Gardner, Maria Montessori, Philip Phenix, Robert Sternberg, E. Paul Torrance, Alfred North Whitehead[2]). The work of these theorists, coupled with our own research and program development activities, has given rise to the concept that we call «high-end learning.» The best way to define this concept is in terms of the following four principles:

1. Each learner is unique, and, therefore, all learning experiences must be examined in ways that take into account the abilities, interests, and learning styles of the individual.

2. Learning is more effective when students enjoy what they are doing. Consequently, learning experiences should be constructed and assessed with as much concern for enjoyment as for other goals.

3. Learning is more meaningful and enjoyable when content (i.e., knowledge) and process (i.e., thinking skills and methods of inquiry) are learned within the context of a real and present problem. Therefore, attention should be given to opportunities to personalise student choice in problem selection, the relevance of the problem for individuals and groups who share a common interest in the problem, and strategies for assisting students in personalising problems they might choose to study.

4. Some formal instruction may be used in high-end learning, but a major goal of this approach is to enhance knowledge and thinking skill acquisition gained through *teacher instruction* with applications of knowledge and skills thatresult from *student construction* of meaningfulness.

Many educators have asked us to be more precise about the goals of enrichment clusters. They want answers to questions such as «What are the specific skills that define high-end learning and how are these skills different from the traditional goals of didactic learning?» To address these questions, we used an inductive rather than deductive approach that is, rather than making a list from the theoretical literature or our own expectations about goals and outcomes, we examined activities taking place in clusters, evaluated student work and teacher involvement, and drew conclusions based on these actual experiences. In other words, we did exactly what we are recommending students to do as they go about pursuing problems in their enrichment clusters.

After carefully examining the work of numerous students and questioning many teachers who participated in the enrichment cluster research project, we were able to identify the following list of specific outcomes. Not all outcomes occurred in every cluster, and the levels to which any individual or group achieved these outcomes varied. Taken collectively, however, we believe that these learning behaviours represent a fairly comprehensive list of outcome goals. We recommend that you include such a list in a proposal for or description of an enrichment cluster program. The specific skills that are the goals of high-end learning include developing the ability to:

- Find and focus a problem that has personal relevance to the individual or group.

- Distinguish between problem-specific, relevant and irrelevant information, identify bias in information sources, and transform factual information into usable knowledge that will help solve the problem.

- Plan tasks that address the problem, sequence events in their most logical and practical order for attacking the problem, and consider alternative courses of action and their possible consequences.

- Monitor one's understanding at each level of involvement and assess the need for gathering more advanced level information (content), methodological skills (process), and human or material resources.

- Notice patterns, relationships, and discrepancies in the information gathered and use this information to refine tasks for addressing the problem and drawing comparisons and analogies to other problems.

- Generate reasonable arguments and explanations for each decision and course of action.

- Predict outcomes.

  – Apportion time, money, and resources.

  - Value the contributions of others to the collective effort and work cooperatively for the common good of the group.

- Examine ways in which problem-solving strategies from one situation can be adopted *in* or adapted *to* other problem-solving situations (Transfer of Learning).

- Communicate in lively and professional ways to different audiences and in different genres and formats.

The ultimate goal of learning that is guided by the four principles and the specific goals or outcomes listed above is to replace dependence and passive learning with independence and engaged learning. Although all but the most conservative educators will agree with these principles and outcomes, much controversy exists about how these (or similar) principles and outcomes may be applied in everyday school situations. Some might view these principles as yet another idealised list of generalities that cannot be easily manifested in schools already overwhelmed by prescribed curriculum and deductive models of teaching. For this reason, we have provided guidelines for developing schedules that inserts enrichment clusters into the regular school week without forcing out other activities. By setting aside a time and following a simple set of guidelines, all students will have opportunities to participate in high-end learning experiences sometime during their school week.

The most difficult part of facilitating high-end learning is getting teachers to stop prescribing and to replace traditional instruction with the kinds of *guide-on-the-side* responsibilities that are used by mentors and coaches. People in these roles instruct only when there is a direct need to accomplish a task necessary for developing a product or service. Many teachers who have served in extracurricular activities as yearbook advisors, drama club directors, 4-H Club[3] advisors, or athletic coaches already have the techniques necessary for high-end learning. The basic characteristics of extracurricular activities follow:

- Students and teachers select the area in which they participate.

- They produce products and/or services that are intended to have an impact on a particular audience.

- They use the authentic methods and advanced level content of professionals to create their product or service. They may operate at a more junior level than adult professionals, but their goal is exactly the same — to create a product or service of as high quality as possible within their level of experience and the availability of resources.

The teacher's role in these activities is to guide students as they find and focus a real-world problem, lend a hand as they locate content and methodological resources, and help them understand how to use the resources. For example,

in a cluster that examined the incidence of acid rain in the northeastern part of the United States, the teacher taught students how to prepare slides for microscope analysis and, with the aid of a microprojector, showed them how to identify contaminants in their rainwater samples. Direct instruction should take place *only* when the acquisition of a new skill needs some explanation and demonstration by the teacher.

9. «Real-world problem» defined

Enrichment clusters are designed to promote the kind of high-end learning described above, and a key concept in organising and delivering services for this type of learning is *application*. High-end learning consists of *applying* relevant knowledge, research skills, creative and critical thinking skills, and interpersonal skills to the solution of real problems. But what makes a problem real? The term «real-world problem» has been tossed around so freely and easily in education circles these days that it has become little more than a hollow cliché. Because a good deal of the focus of enrichment clusters is on the pursuit of real-world problems, we feel obligated to provide the reader with as precise a definition as possible about this oft-used but frequently elusive (and illusive) term.

We define a real-world problem in terms of four essential elements:

1. Personalisation of the problem. First, a real problem requires a personal frame of reference for the individual or group pursuing the problem. In other words, the problem must involve an emotional or internal commitment to action in addition to a cognitive or scholarly interest or simply wanting to find out more about something. Something that is a real problem for one individual or group may not be a real problem for others. For example, stating that global warming or urban crime are «real problems» does not make them real for an individual or group unless they decide to *do something* to address the problem. For these reasons, problems pursued in enrichment clusters must not be predetermined by the teacher or externally assigned.[4] Teachers might help in problem finding and focusing, but students within the cluster should be the main decision makers for selecting the problem and the ways in which it will be pursued. This self-selection provides the ownership and commitment that is needed to work on the development of a product or service for an extended period of time. Teachers and other adults can provide guidance, but they must avoid crossing the line from suggestion to prescription. Divisions of labour within clusters allow individuals to specialise in some aspect of the problem and product, thus increasing opportunities for students to place a personal stamp on any given problem and product.

2. Open-endedness of the problem. A second essential element of real problems is that they do not have existing or unique solutions for the groups or individuals addressing the problem. If

an agreed-upon solution, already existing right answer, or prescribed strategy for solving the problem exists, then it is more appropriately classified as a training exercise. Even simulations based on approximations of real-world events are considered training exercises if their main purpose is to teach predetermined content or thinking skills. Professionals solve problems in order to bring about some form of change in the actions, attitudes, or beliefs of a targeted audience or because they want to contribute something new to the sciences, arts, humanities, or other areas of human productivity. We use the word «new» here in a local rather than global way. It is not necessary for young people to make contributions that are new for all humankind. Replications of studies that have been done many times before can be new in a relative sense if they are based on new data gathered locally or a new wrinkle in the data that makes the study different from the work of others. For example, a group of young people who gathered, analysed, and reported on data about television-watching habits in their community were contributing information that was new, in a local sense, even though similar studies had been done in other communities.

3. Authentic methodology and advanced content. The third essential element of a real problem is that the problem is addressed using authentic methods that applies advanced content — that is, by employing the methodology, knowledge, and materials typically used by investigators and creative producers in the various disciplines. Enrichment clusters ask students to assume the roles of practicing professionals to develop the skills of first-hand investigators as they apply cutting-edge knowledge and content from the area of study. These roles and skills may be at a more junior level than adult journalists, historians, artists, environmentalists, filmmakers, or other professionals, but they are clearly different from the typical school role of student as lesson-learner. Using authentic methods is critical because one of the goals of inductive learning is to help young people extend their skills beyond the usual kinds of products that often result when teachers and students view «research» as merely looking up and reporting information. Authentic methodology lends itself to authentic products.

Similarly, in an enrichment cluster, students construct meaning and consult advanced references and sources as professionals would. Though some reporting of previously known information is a necessary part of most investigations (in the professional world, the pursuit of new knowledge should always begin with a review of what is already known about a given topic), the end result should be a creative contribution that goes beyond existing information that can be found in encyclopaedias, on the web, or in the «all about» books that occupy most library shelves.

Every field of organised knowledge can be defined, in part, by its methodology, and the methodology of most fields can be found in certain kinds of guide-

books or manuals. These «how-to» books are the key to escalating studies beyond the traditional report writing approach that often passes for research. Likewise, the content of a field is often organised in books about the specific topic, found on the web, and in current journals of the field. To obtain advanced knowledge, students and cluster facilitators alike can connect with experts in their areas of pursuit.

Every field of knowledge can also be defined in part by the kinds of data that represent the raw material of the field. New contributions are made in a field when investigators apply well-defined methods to the process of making sense out of random bits and pieces of information. Although some investigations require levels of sophistication and equipment that are far beyond the reach of student investigators, almost every field of knowledge has entry level and junior level data-gathering opportunities.

4. Authentic audiences. The final essential element of real problems is that they are directed toward real audiences. Real audiences are a major part of the *raison d'être* of the practicing professional upon which this model of learning and teaching is based. Professionals produce creative products for specific clients and audiences. Writers hope to influence the thoughts and emotions of their readers, scientists do research to find better ways to cure diseases or make better products, and artists create products to enrich the lives of those who view their works. Students within enrichment clusters also need to develop their work for a real audience. Audiences may change as the work evolves, but they serve as targets that give purpose and direction to the work. Any teacher who has been involved in the production of a school concert or play knows how anticipation of opening night focuses the preparation, precision, and quality of the performance. The same striving for excellence can be found in groups responsible for publishing a school newspaper, yearbook, or developing a community action project. A sense of audience contributes greatly to task commitment and concern for excellence.

Real audiences consist of people who voluntarily attend to information, events, services, or objects. What one group of students did with the results of their local oral history project illustrates the difference between a real and a contrived audience. Although this group first presented their findings to classmates, they did so mainly to rehearse presentation skills. Their authentic audience consisted of members of a local historical society and individuals who read about the student research in the local newspaper and a historical society newsletter.

10. The assembly plant of the mind

Student-driven learning consists of investigative activities and the development of creative products in which students assume roles as first-hand investigators, writers, artists, or other types

of practicing professionals. Although students pursue this kind of involvement at a more junior level than adult professionals, the overriding purpose is to create situations in which young people are thinking, feeling, and doing what practicing professionals do in the delivery of products and services. Student-driven learning should achieve the following five objectives:

1. Students receive opportunities, resources, and encouragement to apply their interests, knowledge, thinking skills, creative ideas, and task commitment to self-selected problems or areas of study.

2. Students acquire advanced-level understanding of the knowledge and methodology used within particular disciplines, artistic areas of expression, and interdisciplinary studies.

3. Students develop authentic products or services that are directed primarily toward bringing about a desired impact on one or more specified audiences.

4. Students develop self-directed learning skills in the areas of planning, problem finding and focusing, organisational skills, resource utilisation, time management, cooperativeness, decision making, and self-evaluation.

5. Students develop task commitment, self-confidence, feelings of creative accomplishment, and the ability to interact effectively with other students and adults who share common goals and interests.

11. Higher level thinking skills

These five areas of student driven learning reflect the recent attention in the literature dealing with higher level thinking skills. The publication of the «New Bloom's Taxonomy» (Anderson & Krathwohl, 2001), along with the Partnership for 21st Century Learning (Battelle for Kids, n.d.), brought renewed attention to higher-level thinking skills in education. Several international research teams have defined and created frameworks for learning so-called *21st Century Skills* (Binkley et al., 2012; Pellegrino & Hilton, 2012; Lippman et al., 2015) as countries around the world have attempted to reform their school systems and address the increased attention on developing students' skills beyond basic literacy and arithmetic (Care et al., 2017). As stated by Binkley et al. (2012, p. 25), «The crux of 21st century skills is the need to integrate, synthesise and creatively apply content knowledge in novel situations.» Research on project-based learning, a method of instruction which emphasises similar processes and goals as those described above (albeit teacher-directed rather than individualised) suggests that investigative learning processes may promote the development of students' 21st-Century Skills in addition to increasing enjoyment and engagement in learning (Bell, 2010; Kokotsaki, 2016; Thomas, 2000).

Student-driven learning focuses on the pursuit of real problems and should be viewed as the vehicle through which everything — from basic skills to advanced content and processes — comes together in the form of student-developed products and services. In much the same way that all the separate but interrelated parts of an automobile come together at an assembly plant, we view this form of learning as an assembly plant of the mind. This kind of learning represents a synthesis and an application of content, process, and personal involvement. The student's role is transformed from one of lesson-learner to first-hand inquirer, and the role of the teacher changes from an instructor and disseminator of knowledge to a combination of coach, resource procurer, mentor, and, sometimes, a partner or colleague. Although products play an important role in creating these authentic learning situations, the development and application of a wide range of cognitive, affective, and motivational processes are the major goals of this type of learning.

This brief excursion through the complexities of learning theory and the thinking behind student-driven learning is important because it will help you understand the big picture of what we are trying to achieve through enrichment clusters. Although any change from the status quo is always a little intimidating at the start, we have achieved a fair amount of success by gaining faculty, administrative, and parental consensus on a small number of easy-to-understand concepts and related services and by providing resources and professional development related to specific service delivery procedures.

Enrichment clusters represent part of a general plan — called the Schoolwide Enrichment Model (SEM) (Renzulli & Reis, 2014) — to develop the gifts and talents of all young people. Although enrichment clusters can be developed and implemented independently from the overall Schoolwide Enrichment Model, some of the underlying theory, research, and practical know-how surrounding SEM on developing gifts and talents can be useful to program developers for both background information and for expanding the continuum of services based on this common goal.

Notes

[1] Readers interested in a more detailed discussion of the theory underlying the brand of learning upon which enrichment clusters are based can refer to «The Definition of High-End Learning,» which can be found at https://gifted.uconn.edu/schoolwide-enrichment-model/semart/

[2] It is beyond the scope of this paper to review the work of these eminent theorists and thinkers; the main concepts or ideas that each person has contributed to this approach to learning can be found in *Schools for Talent Development* (Renzulli, 1994, p. 203).

[3] American youth organization that has spread to several countries with the aim of promoting practical learning and linking the school to the rural world. Its name refers to Head, Heart, Hand, and Health.

[4] An exception to this requirement might be an enrichment cluster formed around an established program (e.g., Math League, International Future Problem Solving, Odyssey of the Mind) that specifies one or more problems for state or national

competitions. The criterion, however, is partially met because students ordinarily volunteer for such programs.

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Joseph S. Renzulli, is Professor of Educational Psychology at the University of Connecticut, where he also served as director of the National Research Center on the Gifted and Talented (https://nrcgt.

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He is a leader and pioneer in gifted education and applying the pedagogy of gifted education teaching strategies to all students. His research has focused on the identification and development of creativity and giftedness in young people and on ~~organizational~~ models and curricular strategies for total school improvement. A focus of his work has been on applying the strategies of gifted education to the improvement of learning for all students.

Renzulli is known for his contributions to understanding giftedness. He developed the Three-Ring Conception of Giftedness, which promoted a broadened conception of giftedness. He also developed the Schoolwide Enrichment Model for developing children's talents in schools. He argues that high potential individuals may only turn their asset into talent if their environment encourages it.

His work on the Three Ring Conception of Giftedness, the Enrichment Triad Model, Schoolwide Enrichment Model (SEM), Curriculum Compacting and Differentiation were pioneering efforts in the 1970s. He has contributed hundreds of books, book chapters, articles, and monographs to the professional literature, many of which have been translated to other languages. Dr. Renzulli's enrichment-based and differentiated teaching model has been ~~utilized~~ by more than 35,000 teachers from around the world since 1978.

The American Psychological Association named him among the 25 most influential psychologists in the world. He received the Harold W. McGraw, Jr. Award for Innovation in Education, considered by many to be "the Nobel" for educators, and was a consultant to the White House Task Force on Education of the Gifted and Talented.

His most recent work is the Renzulli Learning System (https://renzullilearning.com/), an online ~~personalized~~ learning program that provides profiles of each student's academic strengths, interests, learning styles, and preferred modes of expression. This unique program also has a search engine that matches multiply coded resources with student profiles. Teachers also use the program to select and infuse high engagement enrichment activities into any and all ~~standardized~~ curriculum topics. This programme is being adapted into Spanish by Javier Tourón (Vice-Rector for Innovation and Educational Development at the Universidad Internacional de La Rioja) thanks to the agreement signed between Renzulli Learning and UNIR.

Dr. Renzulli is also the founder, along with Dr. Sally Reis, of the Joseph S. Renzulli Gifted and Talented Academy in Hartford, Connecticut which has become a model for local and national urban school reform for high potential/low income students.

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Teaching philosophy and cultivating intelligence. A second look at Critical Thinking and Indoctrination

La enseñanza de la filosofía y el cultivo de la inteligencia. Una segunda mirada al Sentido Crítico y al Adoctrinamiento.

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Abstract:

Thinking demands an effort that many people avoid. Teaching philosophy is an especially valuable tool for cultivating intelligence. The teacher's action demands a difficult balance between caring for the development of the student while respecting the condition as a person that is inherent to her. This equilibrium is easier to achieve if one has an accurate idea of the meaning of the critical sense and of the importance of avoiding indoctrinatory behaviour. This article offers new approaches to these topics that differ from those proposed in previous years.

It defends the idea of also relating critical sense to insight and an expanded reason, and it draws attention to the importance of uncovering the indoctrinating activities of some states, in order that we might know how to struggle against not just personal errors but also against mistaken public initiatives, identifying the strategies teachers, and in particular philosophy teachers, should foster to prevent their students from falling into the trap of indoctrination.

The article concludes with a brief description of an innovative curriculum that was approved in France in 2019 to offer teaching of philosophy in the baccalaureate.

Keywords: secondary education, philosophy teachers, critical thinking, indoctrina-

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tion, insight, philosophy in secondary teaching in France.

Resumen:

Pensar exige un esfuerzo del que muchos huyen. La enseñanza de la filosofía es un instrumento especialmente apto para el cultivo de la inteligencia. La acción del profesor exige un difícil equilibrio entre el cuidado del desarrollo del educando con el respeto a su condición de persona, que le es propia. Ese equilibrio es más fácil de conseguir si se tiene una acertada idea del significado del sentido crítico y de la importancia de evitar comportamientos adoctrinantes. En el artículo se ofrecen nuevos planteamientos sobre estos temas, diversos de los mantenidos en años anteriores.

Se defiende la idea de relacionar el sentido crítico también con el *insight* y una razón ampliada, así como se hace notar la importancia de descubrir las actividades adoctrinantes de algunos Estados, de forma que se sepa luchar no solo contra los errores personales sino también contra las iniciativas públicas equivocadas, señalando las estrategias que deben fomentar los profesores, y especialmente los de Filosofía, para evitar que sus alumnos caigan en la trampa del adoctrinamiento.

El artículo concluye con una breve exposición de un curriculum novedoso que aprobó Francia en 2019 para ofrecer la enseñanza de la filosofía en el bachillerato.

Descriptores: enseñanza secundaria, profesor de filosofía, sentido crítico, adoctrinamiento, *insight*, la filosofía en la enseñanza secundaria en Francia.

1. Introduction

When I started working in the field of the philosophy of education, I made a list of the topics I believed were most important to study. These included the question of *critical thinking*, which had considerable import in society in these moments, but which had not always been developed appropriately, and had not been considered in the context of education in Spain at that time. Accordingly, I published an article in the *Revista de Filosofía*[1] and returned to the matter in 1991 (Ibáñez-Martín, 1991) among other occasions, having often covered it in my classes.

Over time, I have set out a presentation of the origins of research into critical thinking in education, an analysis of the different ways it has been interpreted, and a personal proposal for a definition of it, identifying ways of applying and teaching it.

In the midst of these activities, I attended the 15th World Congress of Philosophy, which took place in September 1973 in Varna (Bulgaria) on the shores of the Black Sea. Several thousand people gathered there, delivering almost six hundred papers and lectures. However, there were very few representatives from Spain. These included just one university professor, who did not give a paper, and we were only a dozen academics who

did present work, half of which were on philosophy of law. The prevailing atmosphere was rather bleak. It was apparent that some of the works presented did not appear in the documentation distributed at the start as they were differed especially from Marxist dogma. An American socialist read a list of Marxist philosophers who had been refused permission to attend the Congress. Every day a bulletin was distributed, which made it clear that some participants had shown with solid arguments how other attendees had erred by making claims that were not in accordance with Marxist ideology. Of course, no Catholic Church was open and Father Boyer, a member of the Congress's organising committee, who had been specially invited by the Bulgarian committee, told me that he celebrated Mass in his hotel room as he had not been allowed to set up a space so that people at the congress who wanted to, could attend Mass.

A young Catalan couple suggested that some of us should organise a dinner for Spanish speakers. Around 50 of us went and I sat at the table next to a young man who seemed to be from the Caribbean. I asked him about himself and he told me that he worked in a Cuban university where he taught historical materialism. I asked about the curriculum in his faculty and he told me that they also taught dialectical materialism. At the end of the meal, those of us who had organised it gathered along with the official interpreter who had been assigned to our group. To talk about something other than the congress, we mentioned the efforts at indoctrination that were apparent everywhere, noting some examples such as how striking it was to see that the many monuments related to the communist revolution were guarded by a boy and a girl dressed in the uniform of the party's youth organisation, that the descriptions of the paintings in the museum of art were in accordance with the principles of socialist realism, and that the popular choirs and dancing, according to the bulletin, reflected "the new socialist reality since the people's government had taken power." Our interpreter — a very pleasant young woman — kept supporting the official positions and even when we observed that it was impossible to buy international newspapers like *The Times*, *The New York Times*, or *Le Monde*, she said that they could not be ordered as the newspaper sellers had no way of knowing how many they would sell.

All these facts, repeated in many places, have led me to reflect on the difficult balance between caring for the development of individual students and respecting their condition as persons, something that inspires thought about two topics that have gradually become more important with the passage of time, namely establishing the essential elements of critical thinking and of indoctrination. These are elements that have not always been considered equally correctly.

I cannot hope to give a full exposition of these points in the short space of an article, and I have already covered them on other occasions (see Ibáñez-Martín 1969, 1981, 1985, 1988, 1990, 2006, 2013, 2015, 2017).

My intention is to offer an overview, updating my earlier perspectives on how philosophy teachers, namely, can help develop the personalities of adolescents, respecting their dignity as individual persons. In this direction, it is necessary to identify the central points that should characterise care for those who are joining the human community. And secondly, consequences for teachers' activity should be drawn that express the necessary respect for the condition as a person of these new members of the community.

2. Education and care

From Rousseau to the present day, so much has happened that no teacher, no mother, would trust in abstentionist or ultra-permissive theorists. Nowadays it is unusual to encounter anyone with responsibilities towards new generations who does not hold that *the proof of the pudding is in the eating*, and people who do support these theories have never expected to be close to the results of their ideas.

In addition, it is vital to recognise that the most widespread dangers stalking educational action lie in two approaches that still have a significant number of followers.

The first is fear of commitment. Those who describe themselves as postmodern young people are dominated by relativism, a limited capacity for sacrifice, and the fear of a truth that might hinder their aim of enjoying unrestricted liberty (cfr. Ibáñez-Martín, 2006). This atmosphere means that many parents and teachers do not dare defend the truth, but instead see themselves as being obliged to offer young people all possibilities so that they can decide. But the opening of the mind discussed below facilitates a personal encounter with the truth, and when autonomy is confused with a liberty without points of reference, people confuse opportunities with options and miss the train of life by going on a bike ride, as a Tweet that went viral in late November said.

The second danger at present is yielding to the fashions of the moment. We are all aware that in times in which, as noted above, people pontificate on the importance of unrestricted freedom, the reality is that media pressure has a strength that nobody has had before now. The list of 100 influencers in Spain that Forbes published, several of which (especially women) have over a million followers on social media, is striking, as is a funny observation I read years ago in a book by Booth (Booth, 1988, p. 257), who noted the idolatries of that time: "walking like Superman, talking like Meryl Streep, writing and talking like our notion of Hemingway, Faulkner, James".

But things have got worse, as this has moved from the worlds of fashion, beauty, sport, and gastronomy to the area of models of behaviour, of pressure to impose political correctness and, even, of the secularisation of blasphemy. As all we know an endless number of cases it is not necessary to refer any example. However, it is interesting to quote the letter that hundreds of American intellectuals of varied ideological positions, albeit united by their opposition to Trump, published in the October 2020 edition of *Harper's*, entitled "A Let-

ter on Justice and Open Debate", in which they warned that the widespread protests against social injustices were fostering a set of new moral attitudes that were necessary but that a misguided position was being added to them that could "weaken our norms of open debate and toleration of differences in favour of ideological conformity."

The last step is one Aréchaga identifies with the following characteristics (Aréchaga, 2020):

> In the past society shared a religious belief and blasphemy was regarded not only as an offence against God but also as an attack on a truth that united the community. Now there is no shared religious truth; instead, there are different groups that attribute an undisputed character to their convictions and denounce any attempt to question them as a blasphemous attack. …
>
> It is very legitimate for these and other groups fight to spread their ideas. What is a danger is if they seek legal protection so that civil authorities punish the blasphemer who dissents. And this is what is happening. Freedom of expression in the West is ever more restricted by laws and social practices that supposedly protect against so-called "hate speech" …, these have become an expeditious method for intimidating and silencing anyone who commits the sin of criticising or satirising the ideas and aims of certain groups.
>
> Like any attack on what is most sacred to society, secularised blasphemy demands that the offender be punished. Sometimes the punishment can even be a fine or prison if the accused is caught by the mechanism of laws against hate speech. More often, the guilty party is subjected to an auto-da-fé in the media, to being burnt when social media becomes angered by irreverent discourse, to being branded with the stigma of being "deniers", "homophobes", or "supremacists", depending on the case. On other occasions, so-called "cancel culture" sets out to boycott, discredit, and brand as antisocial those people who do not accept the predominant opinions and dare to say so. And we have not infrequently seen cases of people losing their jobs, being struck from the lists of acceptable guests, or being boycotted in university classrooms for stating their views.

It seems to me that there is no doubt of the urgent need to encourage teachers to remember that they do a job that should be honoured[2] as it does not simply set out to follow the dictates of fashion or to serve the economic needs of a country, but rather to guide young people in the exercise of their freedom so that they can achieve a good and full life, as is apparent in the last words of Socrates, when he said to his friends, "when my sons grow up, gentlemen, punish them … if they seem to you to care for money or anything else more than for virtue" (Plato, 41e).

The case of secondary school philosophy teachers seems especially interesting and relevant to me. Interesting because the dangers facing education have affected them in a particular way. Relevant because history shows that civilisation started on its journey towards progress when reason started to acquire a strength which, until then only tradition enjoyed, which shows that good teaching of philosophy can have

a very positive influence on the development of young people.

Indeed, if we study the behaviour of some philosophy teachers, we can see that a not insignificant percentage of them has fallen prey to the following errors. The first is reducing philosophy "to vicarious forms such as stale doxography or confused cultural studies" (Arenas, 2020, p. 116-117). Here we find a concealed expression of horror of commitment: the teacher behaves as though the history of philosophy were, in the words of Gilson (1974, p. 32), "teaching a complete collection of all possible errors …. Rudderless in a sea of conflicting opinions, a well-made mind cannot but do one single thing, which is to renounce philosophy as a bad job." The second error is dedicating oneself to what is fashionable and to political correctness. But both types of behaviour are mistaken as, Gilson goes on to say (o. c., p. 40) "the history of philosophy should be universally recognised as an essential part of a complete education in philosophy … the end goal of which is not to teach philosophy but to train true philosophers," in other words, people with "an unwavering will to know, combined with an absolute respect for the truth" (Gilson, o.c., p. 59).

But there is also another error, with a variety of causes ranging from the wish to appear to be an especially qualified person whom nobody can fool, to the desire to join a bandwagon endorsed both by illustrious philosophical figures and by the World Economic Forum, something that makes it easier to keep one's job as a teacher of philosophy, a subject that runs a serious risk of finding itself without a place in the curriculum in its true form. This bandwagon involves supporting the idea that the aim of philosophy is to spread critical thinking. To this effect, it is worth turning to the Frankfurt School or better still Kant who, in a note to the first edition of the *Critique of Pure Reason*, which was removed from the second edition, perhaps because of its forthrightness, said:

> indifference, doubt, and finally, severe criticism, are rather signs of a profound habit of thought. Our age is the age of criticism, to which everything must be subjected. The sacredness of religion, and the authority of legislation, are by many regarded as grounds of exemption from the examination of this tribunal. But, if they are exempted, they become the subjects of just suspicion, and cannot lay claim to sincere respect, which reason accords only to that which has stood the test of a free and public examination.

For its part, the position of the World Economic Forum is clearly stated in its Report on the future of work, where it notes that the skill there is currently the greatest demand for is *critical thinking and analysis* (World Economic Forum, 2020, p. 36). In conclusion, when I published my first work on critical thinking, there were few people studying it. Now, if you search for critical thinking on Google, there are 1.23 billion hits.

Naturally, the variety of positions among this overwhelming bibliography is virtually infinite. One secondary-school philosophy teacher, for example, notes

that in France it is a case of showing "how an idea supported by one philosopher is challenged by another, without forgetting, furthermore, how philosophers constantly criticise received ideas, opinions, authorities, political ideas, journalists, the media, the representatives of the human sciences" (Bornhausen, 2018, p. 392). For this author, this attitude results in a hypercritical position that turns against the teaching of philosophy, since reducing philosophy to the free exercise of critical thinking involves forgetting that "philosophising is also and above all a matter of solving problems" (o. c., p. 392), profound problems as, according to Aristotle, "as more and more arts were discovered, some relating to the necessities and some to the pastimes of life, the inventors of the latter were always considered wiser than those of the former, because their branches of knowledge did not aim at utility" (Aristotle, 981 b 15-20).

The conclusion is that seeking to work with a commonly accepted definition of critical thinking is an impossible task, given that we can read that it is "a way of engaging intellectually with the world" (Bronner, 2019) but also that its core component is "the disposition to seek reasons and evidence, and to form beliefs on this basis" (Siegel, 1988, pp. 87-88).

Faced with this diversity, I will start by setting out the definition I published years ago, and then develop my current position.

In my work from 1991 (pp. 220-221), after setting out the various ways of understanding critical thinking, I proposed the following definition:

> *Critical thinking is the mature expression of the specific human quality of being the principle of one's actions, which affects both intellectual activity and the exercise of the will.* Indeed, people who are capable of critical thinking enjoy an intellectual activity that is not merely limited to passive and chaotic accumulation of disaggregated empirical data and they will not be satisfied by superficial explanations. Instead, they aspire to wisdom, to penetrating the profound reality of things with reason, weighing and systematically organising any piece of data, argument, proof, or idea. Possessing critical thought, in the field of the will, means directing one's existence towards the realization of a humanising existential project, without giving in when faced with inner impulses that irrationally motivate actions that run counter to the life plan adopted, nor before external forces that try to make one lose one's own identity, reducing the person to one more number in an undifferentiated group.

But thirty years have passed now, and this definition no longer convinces me for two main reasons. Firstly, because I combine the aspiration to wisdom with reason's ability to penetrate the profound reality of things, and secondly because I affirm that critical thinking, in the field of the will, means discovering the best way to follow to one's existence. I will now identify the concrete reasons for these discrepancies. Firstly, we must recognise that the years have shown that rationality is a great quality that humankind possesses, but that the individual does not possess only this quality, nor can reason be

limited to its interpretation as empirical reason. Substantiating this thesis is not a brief or simple task. I will try to set out its essential foundations.

Firstly, I think it is vital to reflect on the contributions of Pascal. In his *Penseés*, we read that "Thought constitutes the greatness of man" and "All our dignity consists, then, in thought" (Pascal, 1958, n. 346 & 347). But thought does not feed solely on reason as "the heart has its reasons, which reason does not know" and "we know truth, not only by the reason, but also by the heart, and it is in this last way that we know first principles" (id., n. 277 & 282). It is important to recall that Pascal was not an essayist or a seminarian but a mathematician and a physicist who invented various instruments such as *Pascal's calculator* — one of the earliest calculators — and who published a work to demonstrate the existence of the vacuum, something regarded as impossible until that moment. But Pascal did not believe that the truth could be reached only through empirical reason, a position that, with a gap of two-hundred years, he shares with another Frenchman with very different political and religious ideas, namely Émile Zola (1840-1902), who in the definitive version of one of his essays wrote: "The truth is that the great works of the contemporary novel say much more about man and nature than do serious works of philosophy, of history and of criticism" (Zola, 1968, p. 1240), words recently used as an epigraph to a book by Jacques Bouveresse, holder of the chair in philosophy of language at the Collège de France.

The conclusion of these ideas is clear: a wisdom that tries to build itself using only empirical reason cannot give a sufficient response to the big existential questions. If we want to study them, it is necessary to turn to that flow of ethical experiences that configures a historical wisdom that critically and at the same time gently embraces a varied set of contributions people have made through all the sources of knowledge that we possess.

Secondly, and as a conclusion of this, what is rational is not just that which is achieved through empirical reason, which has had great results based precisely on a religion that leads us to believe that nature is a book written in the language of mathematics, a language that does not serve to decipher all human questions about the meaning of life, about the good life, about what comes after death, or about the higher being that wrote the book of nature.

As a final evaluation of these ideas, I now hold that critical thinking entails far more than knowing the logical rules that the different sciences must follow. Of course, this is a necessary question, and Richard Paul[3] has acted correctly in offering a methodical structure that makes it possible to advance along "the sure path of science", as Kant wrote in the prologue to the second edition of the *Critique of Pure Reason*.

But I now think that critical thinking is not found in the place Siegel described, as noted above, but in the closeness of *insight*, that surprisingly human capacity that

makes it possible to understand suddenly the most profound elements of a question and which is sometimes experienced as a sort of revelation.

It is interesting to note that Perkins, some years ago, said that the importance given to mathematics and the sciences was increasing, but that cognitivists had found that there was ever shallower comprehension — insight — as students "often have a strikingly superficial understanding of what they have been taught" (Perkins, 1991, p. 4).

I think it is relevant to note that when speaking of critical thinking, it is common to reflect on the meaning of the term *critical*. But we never mention that, according to the Real Academia Española, *crítico* (critical) also means "the time, point, occasion etc. that is most opportune, or that should be used or dealt with". Only in the Lalande French dictionary do we find a reference to these ideas, when it defines *sens critique* (critical thinking) as "habitude de n'admettre que des affirmations contrôlées, accompagnée d'une sorte de décernement intuitif du vrai et du faux ("the practice of only accepting verified statements, accompanied by a sort of intuitive judgement of what is true and false") (Lalande, 1988).

These observations suggest to me that *critical thinking can initially refer to the pursuit of certain logical criteria that characterise good work in the different sciences, but that there is also a higher level of critical thinking characterised by the capacity, when faced with a problem, to discern whether we can limit ourselves to following this safe path or if it is necessary to turn principally to the knowledge provided by the historical wisdom that human beings possess, both because experience shows — without falling into the absolutism of the philosophy of suspicion — that a perfectly constructed rational argument sometimes hides interests that are not in the open, and because there are essential questions that empirical reason cannot prove, but the truth of which can be reached through faith in a wisdom that offers us hope that guides our life and strengthens our decisions.*

Finally, I would note that speaking of critical thinking in the field of will, could be ambiguous as the field it pertains to is intelligence, which provides the will with information that can be accepted or rejected.

3. Education and respect for the student's condition as a person

In this work we suggest analysing the mission of the philosophy teacher in the development of the personality of the student, and we started by studying the appropriate forms of care that should be followed.

However, there is a Spanish saying that some loves kill, and one of the ways of *killing* the young generation — not always with love — is to turn education into indoctrination. Leaving to one side the detail of the process of development of the word *indoctrination*, which has shifted from having positive connotations to having solely

negative ones, I will start by saying that anyone who believes that the importance of his or her ideas and values is such that they must be imposed on others acts very wrongly, "taking good care to destroy all possibility of reflection" (Reboul, 1989, p. 104). In fact, most of the authors who start to take an interest in this topic, took liberal positions that did not look kindly on the teaching of religion in public or private schools in the West, and this did not prevent some from extending their concern towards political values in school, making it possible to understand better earlier ways of approaching the topic of indoctrination.

A slow reflection, in which my experiences during the World Congress of Philosophy in Varna were important, has gradually led me to the conclusion that the most powerful indoctrinating agent can be the state, and so having moved past positions I held years ago, it now seems to me that teachers, firstly of philosophy, have a responsibility both to confront the indoctrinating state and to avoid using indoctrinating behaviour themselves, instead acting in ways that help young people avoid falling into the trap of indoctrination, which, by trampling the personal condition of the learner, transforms human education into animal training.

Therefore, I will start by suggesting a definition of indoctrination, before moving on to list the main features of the indoctrinating state, and then identify the basic attitudes a philosophy teacher must avoid or maintain, especially with regards to this question.

My current suggested definition of indoctrination, considering studies on the topic, is: "*any action that, based on political power or in educational settings, seeks to imbue certain ideas in the other or ensure that the other develops certain types of behaviour, using the means available and focussing fully on destroying in the other the possibility that pursuing these ideas or behaviour will be the outcome of a reasonably informed personal reflection, deriving from the fear that such reflection will have results other than those desired by the indoctrinator*".

According to this definition, political power indoctrinates when:

1. It sets out to establish a state monopoly on teaching by, when applicable, attempting to do away with a plurality of educational institutions and stripping parents of their human rights over the education of the spirit of their children.

2. It imposes certain approaches in the sciences, which essentially respond to the dominant ideology. Lysenko famously convinced Stalin that Mendel's laws should not be followed, partly because the author of them was a friar. The persecution of Mendelian geneticists was implacable and the retrogression of this science between 1947 and 1964, when it did not follow Mendel, was massive[4].

3. It establishes the curriculum in accordance with ideological criteria, excluding any subjects that it does not consider to be appropriate.

4. It tries to limit information, something that currently results in strict control of information in China and other countries so that it is very difficult to know other information or different approaches to the official ones.

5. It selects teachers in accordance with criteria of ideological affinity, something that saw the teaching profession fall into complete discredit in the countries behind the Iron Curtain, where it provided a vision of the capitalist world that was impossible to believe.

6. It restricts economic support for research to the people and subjects that the political power decides.

7. It requires teaching institutions to compel students to take part in political activities and demonstrations that have nothing to do with their actual function.

Obviously, all these measures can only be imposed in a totalitarian regime, but reality shows that in a parliamentary system there can be times when a parliamentary majority can attack the human rights that underpin an educational system.

However, this does not mean that only the state can indoctrinate. There is no doubt that educators can also indoctrinate, for a variety of motivations, which however well-intentioned they may be, lead more to animal training than to human education, as noted above. I will now list the principal actions that educators should avoid or embrace to overcome the danger of indoctrination.

Firstly, it should be noted that it would be an error:

1. Not to teach the logical path that explains the theses taught in class, forgetting that, as Millán-Puelles states:

> acquiring and increasing knowledge require that unrevealed truths become not just known but also *understood*, scilicet, based on and dependent on those already possessed. Otherwise, there is no science as science requires demonstration, the logical proof that makes explicit the link between a conclusion and its principles. (Millán-Puelles, 1963, p. 137)

There is a clear example of this in Plato when, wearing the mask of Socrates, he makes his followers work, guiding them to discover the problem for themselves and then the means of resolving it (Cfr. Marrou, 1970, p. 80).

2. Proposing incorrect arguments, concealing relevant opposing ideas or making dissenting data disappear.

3. Smothering students' thinking, not facilitating their expression but instead hindering it, and even prohibiting dissent. The story C. S. Lewis tells of Dr Quartz is very significant because it portrays the figure of a good teacher who is overcome by pride (Lewis, 1974, pp. 50-51):

> No university boasted a more effective or devoted teacher. He spent the whole himself on his pupils. He made an indelible impression on nearly all of them. He was the object of much well-merited hero worship. Naturally, and delightfully, they con-

> tinued to visit him after the tutorial relation had ended — went round to his house of an evening and had famous discussions. But the curious thing is that this never lasted. Sooner or later — it might be within a few months or even a few weeks — came the fatal evening when they knocked on his door and were told that the Doctor was engaged. After that he would always be engaged. They were banished from him forever. This was because, at their last meeting, they had rebelled. They had asserted their independence — differed from the master and supported their own view, perhaps not without success.

From a positive perspective, all teachers, and especially philosophy teachers, should:

4. Promote students' thought. A baccalaureate teacher told me that, due to the lock down caused by the pandemic, they were setting exams for students to do at home, having put in place systems to monitor the students to ensure they did not copy. But, as the inventiveness of youth is infinite, they also decided to set exams that made copying difficult. As the date of his exam drew near, this teacher received a surprising question from a student who wanted to know if he was also going to set an exam *in which it was necessary to think*. Sometimes it is necessary to recall significant authors who are now forgotten, such as Andrés Manjón who called on teachers to strive to ensure that the student

> thinks with his thought, wants with his will, feels with his heart, speaks with his style and acts like who he is in everything, spontaneous, natural, with character, not like a phonograph that repeats nor a monkey that imitates, but like a more or less perfect, more or less complete man whose soul is in its place and can be taken out to shine and be put to use. (Manjón, 1948, p. 54)

All teachers should bring their imagination into play to find measures that make the desire to think appear in their students. I have often followed a similar policy to the one Nubiola describes (Nubiola, 2020, p. 24):

> Years ago, I found that the best way to make students think was to make them write short essays (600 words) based on a text I suggest to them or perhaps a topic in the news that personally interests them. Each student should spend around 4 to 6 hours preparing this text. I mark the texts straight away and return them in the next class. Next, I organise a discussion session in which, in pairs, a total of six previously selected students read out their texts and then their classmates comment freely on them.

5. Encouraging students to expand their knowledge, turning to other qualified sources of thinking for pursuing the truth. This broadening of mental horizons has not always been received with enthusiasm, as there are people who state that, deep down, those who speak of open-mindedness want to replace the learners' ideas with ones they want to transmit to them, while others have maintained that this obsession with open-mindedness can result in learners being motivated to try misguided actions that can even lead to addictions that can be very hard to overcome, such as drug use or them coming into contact with

mistaken doctrines that lead them to grow without a clear paradigm without which their personality is likely to grow without any rigour[5].

These objections are correct, but it is interesting to observe that Thomas Aquinas starts the *Summa Theologica* by setting out the arguments against the thesis he is going to defend. This is perhaps a point that requires special prudence from the teacher, who should consider the level of maturity of each learner and propose the appropriate limits for each one, without this preventing us from recognising, as in the case Lewis describes above, that there will be times when learners change their positions because they have been convinced by perspectives the teacher regards as wrong.

6. Finally, philosophy teachers should strive to develop in themselves, and in their students the moral and affective foundations that foster correct judgement. It is necessary to cultivate a dedicated love of truth, a supreme interest in accuracy, and the utmost respect for people who hold different ideas, and it is also necessary to teach disdain for lies and distortion of evidence, just as it is necessary to eschew all political arguments in the world of science. In the same way that it is necessary to design imaginative strategies for teaching how to think, it is also necessary — indeed more important — to think about how to ensure that these moral foundations are lived, bearing in mind the Aristotelian observation that moral questions must not just be known but primarily lived.

4. Coda. A futuristic curriculum for philosophy as a subject in secondary school

The dictionary says that a *Coda* is a dazzling addition to the end of a piece of music. The reader will forgive me if I use this musical image to end with a question not explicitly identified in the introduction to the article, although I might be forgiven less for describing this point as dazzling.

Throughout this article we have seen a number of errors that some philosophy teachers make. But I have not said that these errors are often the result of their training and what political authorities ask of them.

In relation to their training, some time ago I read an article in which Jean Lacroix explained an idea that I found very thought-provoking. This professor of philosophy from a secondary school in Lyon, co-founder with Mounier of the journal *Esprit* and regular contributor on philosophy in *Le Monde*, wrote the following in an article:

> The training of philosophy teachers must be modified, something that can only be done in the name of a true concept of philosophy. This is the process of turning an occurrence into experience through the spirit, if we understand by occurrence everything that happens to us, internally or externally, the brutal things taken as given, feelings, the historical situation, as well as letters, sciences, and arts, and by experience the same thing but reflected in the spirit and turned into meaningful content by this operation. Indeed, there is no philosophy if it is not current, scilicet in a

> strong sense, an action. We are not born as philosophers, but instead we achieve this condition. And this is achieved how the greatest figures have done so, primarily through reflection on masters from the past, if one knows how to find in them the tools and concepts that make it possible to consider in greater depth the present experience. (Lacroix, 1970)

As stated above, Lacroix was a chair of secondary education, which is especially relevant as we all know that a young chemistry graduate runs a serious risk of failing in a high school if he believes he is teaching university students who want to consider the science of chemistry in depth, a failure that will perhaps be greater if we speak of a graduate in philosophy.

Indeed, it is necessary to reflect about the meaning of subjects in secondary education. There have been countries as important as the USA where it has been very difficult to teach young people philosophy. But, sadly, there are other countries where this age group is taught philosophy simply as a result of pressure by philosophy graduates who want a job, as a result of the desire to impose the ideology of the dominant party, or as a concession to the gilded ideal of the value of philosophy for the growth of critical thinking, etc.

However, reality is different. If we teach philosophy to this age group, "[it] is not that we may know what men have thought, but what the truth of things is" (Aquinas, 1886), to help know the meaning of what happens to us and the meaning of life itself. Therefore, the teacher would do well to reflect on some wise people from the past, and not only about masters on philosophy, but also on all the other thinkers that expanded reason allows us to believe will facilitate the task of considering our experiences in depth.

All of this leads me to affirm that I believe that the latest reform of secondary education in France is a very interesting initiative. A first version of the reform was circulated in November 2018 and the definitive text was approved on 25 February 2019 for implementation in the 2019-2020 academic year, meaning that no evaluations of its results have yet been published. With regards to philosophy, a humanities, literature, and philosophy programme was approved, intended for students of Première et Terminale du Lycée, which corresponds to the end of the Secondary education. This programme, according to the French Official Bulletin of Education, aims to ensure that students acquire a rounded education in the field of literature, philosophy, and human sciences, so that they acquire a humanist culture that enables them to reflect on current problems with a broadened perspective. Teachers of the humanities, literature, and philosophy will be involved in this task, covering four major topics over the four semesters of the two years, from their perspective. These topics are:

1. The word, its powers, its functions, and its uses.

2. Different ways of representing the world and of understanding human societies.

3. Human beings' relationship with themselves and the question of the self.

4. Questioning humankind about its history, its characteristic experiences, and its future.

None of these topics is merely literary or philosophical. From my viewpoint, the major effort of this programme is to break with a narrow concept of reason, noting how the truth is choral and can be reached from very different perspectives. Naturally, my hope that this proposal will be followed in Spain, a country that has no chairs in curriculum design, as in the UK, but rather politicians and functionaries, is rather limited.

But perhaps it might inspire secondary school philosophy teachers to reflect when preparing their classes.

5. Conclusion

Adolescence is the most appropriate moment for teaching how to think, and there is no doubt that philosophy teachers have a special responsibility for cultivating their students' intelligence.

However, *thinking* demands an effort that many people avoid and, in addition, here is a difficult balance between caring for the development of the student while respecting the condition as a person that is inherent to her.

This equilibrium is easier to achieve if one has an accurate idea of the meaning of critical thinking and of the importance of avoiding indoctrinatory behaviour. These are two points I have studied for over half a century in a variety of publications. In this article I offer some new approaches to them, which I believe explain in greater depth their place in educational action.

Throughout this work, I analyse the principal risks that face secondary school teachers of Philosophy. In the article I maintain that critical thinking has two levels. The first involves facilitating knowledge and the practice of the scientific methodology that identifies the sure path of science, using Kantian terms. But there is a more profound interpretation in which critical thinking relates to insight, the capacity of reason to discover that certain topics should be deeply studied from an expanded reason, that penetrates the historical wisdom achieved by the human being where there is room for these reasons that reason does not know, according to Pascal.

In addition, I note that study of indoctrination must stay away from the approaches that attempted to explain it a few decades ago, and that it is necessary to show that the state can be a much more effective indoctrinator than the teacher, and so there is an urgent need to uncover not only the characteristics of the action individual people use to indoctrinate, but also the methods the state uses to indoctrinate, identifying the strategies teachers should foster, especially in philosophy, to prevent their students falling in the trap of indoctrination.

The article concludes with a brief description of how France chose in 2019 to

provide philosophy in the baccalaureate, as part of a common humanities, literature, and philosophy programme. This programme is I believe very attractive and I hope studies on its results will soon appear.

Notes

[1] The article was written in 1972 and published in 1973, although the official date of the issue is 1969.

[2] "Hoc falsum est quod magisterium sit honor: est enim officium cui debetur honor." Thomas Aquinas (1954). Contra impugnantes Dei cultum et religionem. Pars Secunda, caput I (2), no. 37, p. 14. In *Opuscula Theologica*. Volume II: De Re Spirituali. Marietti.

[3] Richard Paul (1937-2015) dedicated his academic life to studying critical thinking, writing over 200 articles and seven books on it, some of which have been frequently cited, such as *The Miniature Guide. Critical thinking, Concepts and Tools*, many of which were co-written with Linda Elder. For Paul, critical thinking had two dimensions. The first, to which he dedicated a detailed explanation, describes the steps in the scientific method. In the second, of greater intellectual breadth, he set out to present a more robust conception of critical thinking by combining the cognitive and the affective, taking into account the need for the cognitive process to pass the real-world test of one's own life.

[4] All media were used to eliminate Mendelian geneticists. It was very known the murder of Vavilov, one of the Russian scientists most known. The complete history of this affaire could be read in the book of Pringle, P. (2008). *The murder of Nikolai Vavilov: The story of Stalin's persecution of one of the great scientists of the twentieth century*. Simon & Schuster.

[5] In the field of open-mindedness it is necessary to cite William Hare, a professor of Education and Philosophy of several Canadian universities, till his retirement in 2008. Hare published his first book about it in 1979, and he has done, as it is said by Siegel (2009, p. 26) "a hugely important work on open-mindedness".

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Author biography

José Antonio Ibáñez-Martín. The author started his teaching career in secondary education. He taught in several private schools and was awarded a secondary school chair in philosophy in 1964. He started working as a Teaching Fellow at the Universidad Complutense in 1968, where he completed his doctoral thesis and rose through the academic ranks, being awarded a university chair in philosophy of education in 1980. He was also part of the first governing body of the Universidad Nacional de Educación a Distancia. He is currently a Professor and Vice-rector for doctoral studies at the Universidad Internacional de La Rioja (UNIR) and is Director of the **revista española de pedagogía**.

He has published over 150 works in five different languages, has participated in over 50 conferences, and has received numerous prizes. He was appointed Emeritus Professor at the Universidad Complutense in 2010 and in 2013 was awarded the Grand Cross of Alfonso X, the Wise, the highest decoration in Spain in the field of education, science, culture, teaching, and research.

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The formation of intelligence through Greco-Latin literature and its survival

La formación de la inteligencia a través de la literatura grecolatina y su pervivencia

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Abstract:

Although the classical languages and literatures of Greece and Rome enjoy great prestige, they are increasingly neglected in mainstream curricula. This work aims to analyse the principal reasons behind this situation. To do so, it turns to the thoughts of different specialists who have considered the issue in depth. Their opinions cover a wide array of perspectives, but they all agree on one key point: the scant attention usually paid to texts in the teaching of Greco-Latin literature. Scholars have tended to focus on context, therefore obscuring the texts: they pay more attention to morphological, syntactic, historical, literary, and metric aspects than to the texts themselves. Means have thus become ends, with tangible and unfortunate consequences. As a solution to this, we propose returning the texts to the centre of the classroom, through reading —in full if possible— and discussion of the original works. This way, Greek and Latin language studies will achieve a greater relevance, precisely because they would allow a deeper and more direct knowledge of the classics.

Keywords: culture, literature, linguistics, Greek (classical), Latin.

Resumen:

Las lenguas y literaturas llamadas clásicas, las de Grecia y Roma, aunque gozan de prestigio, cada vez son más desconocidas y tienen menos presencia en los planes de estudio. El objetivo de este trabajo es analizar las causas más relevantes que han podido provocar esa situación. Para ello, a lo largo del artículo se repasan las reflexiones de diferentes especialistas que han examinado la situación con profundidad. Sus opiniones abarcan muy diferentes aspectos, pero un punto clave es la

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poca relevancia que, con frecuencia, se da al texto en la didáctica de la literatura grecolatina. Tiene más preponderancia el contexto, que acaba oscureciendo el texto: se presta más atención a aspectos morfológicos, sintácticos, históricos, literarios, métricos, etc., que al propio texto. De esta manera, los medios se convierten en fines, y, como puede verse, esto provoca penosas consecuencias. Se propone como solución que los textos vuelvan a situarse en el centro de las clases: que se lean las obras, mejor de forma íntegra, y que se discuta sobre lo leído. Además, como consecuencia, los estudios de las lenguas griega y latina alcanzarán a su vez una mayor relevancia, precisamente para conocer a los clásicos directamente y con una mayor hondura.

Descriptores: cultura, literatura, lingüística, griego (clásico), latín.

1. The value of the classics

Much has been written about the importance and the role of the Greco-Latin classics in shaping what is known as Western culture[1]. The Greeks invented the literary genres, created their parameters, and gave them the necessary forms. Rome disseminated them and made them universal. These Greek and Roman literary works are commonly known as *classics* and they will be the subject of this article. However, it seems that the words of the poet Martial from Hispania are still valid in contemporary society; he compared the great poems with the brief epigrams he wrote and observed that while everyone admired those prestigious and lengthy compositions, what they actually read were his short diversions (*Epigrammata* IV 49). He gives an impression of what also happens now with the classics: everyone praises them but nobody reads them.

Juan Valera gave a similar opinion in the introduction to his translation of *Daphnis and Chloe* by Longus:

> Very few masterpieces have a fame that never fades. The authors of these works are called the classic authors *par excellence*, and every educated person, or anyone who claims to be educated, buys their works, even if they never read them. If by chance, in a moment of leisure, they start to read one of these authors, let us say Homer, Pindar or Virgil, after a few pages, they either fall asleep or become bored. (1907, p. 6)

As we can see, this panorama that is not just sceptical of the great Greek and Latin works but also often hostile to them is not unique to our time; however, it is now perhaps more necessary than ever to highlight the value of the classics precisely because there have never before been so many means for their conservation, knowledge, and spread: just when we have the most possibilities, we take the least advantage of them. It also seems advisable to reflect on these questions with the arrival of another reform of our educational system.

The writer José Jiménez Lozano, from Ávila, who died in 2020, and was the

winner of the 2002 Premio Cervantes, explained very well what was already happening. Indeed, in one of his excellent diaries he wrote the following:

> Here is an enchanting and true story that Pierre Grimal told in an interview. "Imagine," he says, "a primitive society where people are still close to ordinary life, where they need to harvest corn and make bread, light the fire; they are very simple, or I suppose they are at least, although maybe I am insulting our ancestors from Mas-d'Azil or Lascaux. Suddenly, one of them finds a piece of grass that he stretches between two wooden stubs and he immediately realises that when he plucks it, it makes a sound. The people around him say: 'Stop playing and come and help us, we have to cut down a tree, and cutting a tree down with a flint axe takes a long time.' But he does not come, and they go to find him so that he can help the team. And he does help the team, obviously, but he does not forget the sound he has heard. It is to him that the future belongs, not the people who, however they do it, cut wood, because their flint method will be replaced by another, while the vibrating string technique will make the bodies and hearts of people vibrate up to our days. He has suddenly discovered Mozart, and it is to him that the future of humankind belongs, to the useless, to the superfluous. This is a more profound truth in the hearts of men than techniques. But we are made to learn technology and computing ... and this is like the people who cut down a tree with a flint."
>
> Twenty years from now, all of today's technical sophistication will certainly seem laughable; and, if we do not maintain the spirit we have inherited, we will be just a rudimentary civilisation of antiquated digital techniques constantly being recycled, condemned to a basic life satisfying basic needs. It is inevitable. (2003, pp. 23-24)

Jiménez Lozano's words, written almost twenty years ago, have now proven to be sadly prophetic. Today, we prioritise the apparently useful, the technical, the immediate... while the things that have been regarded as permanent all through history are relegated to a secondary position or eliminated completely. Faced with an education that often focusses merely on techniques and superficial skills, reading the classics is a commitment to the deep values that shape our society. Nowadays it is vital to return to reading the great Greek and Latin authors at school, but with the passage of time, their vigour not only seems not to be growing, but it actually appears to be diminishing. There are many causes that can be suggested to explain this sad situation, not least among which are a lack of vision and short-termism in curriculum design. But these brief reflections do not set out to analyse the full extent of the problem, as they are written with the aim of suggesting a practical solution to help educational professionals in their day-to-day work, and, as will be shown below, they will focus solely on one of these possible causes.

2. Text and context

In 2005, the IV International Medieval Hispanic Latin Conference was held in Lisbon. There, the distinguished medievalist Manuel Díaz y Díaz (1924-2008),

Professor of Latin at the universities of Valencia, Salamanca and Santiago de Compostela, gave a memorable address in which he very bravely enquired into the causes of the lack of success of classical studies in current society. His conclusion was forceful:

> I fear that the necessary — and exceedingly expensive — mechanisms that allow us to come to the texts have made us forget the very essence of humanism, which is not grammar or linguistics, nor even literature, but rather the texts themselves, since they show us that we are in a position to explain man in himself, the man who is intemporal and permanent man, but alone, the master of himself (*homo compos sui*, as we would say in Latin) and not turned into a simple number in a nameless mass. (2006, p. 93)

These words, coming from who they came from, a teacher of recognised wisdom, and at such a moment, at the peak of a brilliant academic career, had the tone of something being left to posterity like a precious treasure. Díaz y Díaz noted that the cause of the loss of prestige of philology to some extent lay in the philologists themselves: lost in context, philologists often run the risk of forgetting the text. They devote all of their efforts to the morphological, syntactic, phonetic, historical, literary, metric, etc. context, losing sight of the text itself. Is what this text says true? Is it valuable?

> Seeing a text only as a resource for teaching or learning grammar, as a support for certain observations in studies of any type, a source for obtaining literary, historical, and other types of data, is, it goes without saying, a facile and unfortunate simplification, which makes our studies inflexible and anodyne and destined to be a useless waste of time in the eyes of many. (Díaz y Díaz, 2006, pp. 94-95)

In his presentation, Díaz y Díaz recommended locating man, who is the authentic humanist ideal, as a solution to this problem, as the great classical authors did. This results in an open and non-exclusive mentality that is capable of revealing the survival of classical languages and literature in the languages and literature that derive from them, which are also of very high quality. Classical philology is therefore absolutely necessary for the continuity and survival of the West's historical memory.

C. S. Lewis — also a medievalist — denounced this common mistake where context ends up obscuring the text in his marvellous work, *The Screwtape letters*:

> Only the learned read old books and we have now so dealt with the learned that they are of all men the least likely to acquire wisdom by doing so. We have done this by inculcating the Historical Point of View. The Historical Point of View, put briefly, means that when a learned man is presented with any statement in an ancient author, the one question he never asks is whether it is true. He asks who influenced the ancient writer, and how far the statement is consistent with what he said in other books, and what phase in the writer's development, or in the general history of thought, it illustrates, and how it affected later writers, and how often it has been misunderstood (specially

> by the learned man's own colleagues) and what the general course of criticism on it has been for the last ten years, and what is the "present state of the question". (2001, pp. 150-151)

It is therefore necessary to find the essence of the text, to dig down into its ultimate meaning. The morphology, syntax, phonetics, etc. are means, and necessary means, but not ends. It is necessary to delve deeper and not linger in the superficial. The example raised with regards to these questions by Antonio Fontán (1923-2010), who did so much to defend and promote the study of the classics, among many other important things, in his life and works might serve to illustrate these ideas. Fontán, who was a distinguished Latinist, a journalist of great worth, and a noteworthy politician, stated with his characteristic with that what mattered most to him about the word *Capitolium* was not really whether the *o* was long or short in Latin.

3. Returning to the texts

From what has been noted so far, it is clearly possible to divine as a vital preliminary step, the need to design a reading plan that enables students to make an appropriate approach to this type of book, and as its main feature, this plan should be gradual. If this were not so, the students would be justified in rejecting it. It is necessary, therefore, to be conscious of the goals we wish to achieve and of whether the students are in a position to achieve them. The risk in this situation is that they might reject the classics because they find them hard to understand, while the solution is to prepare the students with sufficient time so that they can make the most of their reading, something that is clearly much more complex.

And, next, it is vital to go to the text, to which more time should be dedicated than the context. Literature classes should fundamentally be classes about books, where people read and discuss what they have read. It is a mistake — one that is unfortunately all too common — for literature classes to be reduced to memorising a series of names, titles and dates that mean nothing to the students. This is and has been the death of literature.

It is important to make efforts to ensure that students recognise the importance of the text they are working on in class, its *auctoritas*, both for its intrinsic value and for the impact and continued existence it has enjoyed throughout history. So, reading Homer for example makes it possible to reflect on the need for heroes in a society, in that they embody the qualities that specific era values. It is easy for young people to empathise with this when they see so many heroes and superheroes in film and literature. The tragedies of Aeschylus, Sophocles, and Euripides display all of the grandeur and all of the lowness of man, all of his drama. Reading Aristophanes gives an understanding of the importance of caricature and social criticism, and *The apology of Socrates* is a call to behave with integrity. The student will understand the importance of a critical spirit when

encountering the veiled political propaganda of a bellicose passage from Caesar, or when encountering the different versions of the conspiracy of Catiline depending on whether they are reading Cicero or Sallust. The descent to the underworld in the *Aeneid* will give hope in moments of darkness, Horace surprises with his knowledge of the profound desires of all people, and the *Metamorphoses* will help understand a great many masterpieces of painting and sculpture in the history of art. And to all of them, we must add their incalculable survival in other subsequent languages and literatures.

In this way, with this in-depth consideration of Greek and Latin texts, the teacher can help students develop their intelligence and also their critical spirit, which will be of great help to them for analysing the facts of the historical moment in which they live, from their own experience of the classical past, an experience acquired by reflective reading of classical texts and of the values that humanity found in them in all subsequent periods. The present times, always so immediate, new in appearance, and complex, can be analysed and judged better from the tracks of the readings of the classics, as these provide the necessary distance to judge the current world and its, sometimes shallow, novelties. A brave education, which does not reject teaching classical values and does not restrict itself to supporting other values that are current trends, thus acquires an integral dimension, reaching the different facets that make up the person and are always reflected, in the best way, in the great books.

One debate that derives from these general approaches is the more specific question of whether students should read unabridged works — which, as explained above, are difficult, and so it is not a matter of avoiding them but of teaching students to be able to understand and enjoy them — or if these works should be adapted or a selection of passages provided. Nuccio Ordine in his successful book *The usefulness of the useless*, in which he roundly denounces the excesses of efficiency in the current world, is emphatic on this point: "samples of selected passages are not enough. An anthology will never have the ability to stimulate reactions that only a full reading of a work can produce" (2013, p. 98). The teacher must, therefore, decide whether to transmit a cultural varnish or, on the contrary, accept the challenge of the transformative power of which literature is truly capable.

Having reached this point, we will perhaps understand a little better the sense of teaching classical languages, Greek and Latin, nowadays. The fundamental objective, as set out here, is to comprehend the text in all its richness and all its depth. Of course there are excellent translators and wonderful editorial works, with very well-written introductions, relevant explanatory notes, etc., but no translation can match the original. The semantic nuances, the linguistic wealth, the literary figures, the sonority, the word order… These factors are very hard to transfer into another language, and it is an impossible task when translating poetry. All of the grammatical, historical, literary, cultural, etc. means mentioned above now

come into play in order to understand the text. This is the ultimate reason for studying Greek and Latin.

In the teaching of Greek and Latin, many people now focus, perhaps excessively, on linguistic aspects, others prefer to work with techniques typical of a spoken language, but both groups can end up giving the texts — what is truly important — a secondary position[2]. For example, Nicola Gardini, a professor at the University of Oxford, makes this criticism:

> Latin is taught in order to read ancient authors. However, Latin is still mainly studied through abstract rules. I am not saying, nor would I ever say, that it should be studied like a modern language (if anyone does speak it, all the better for him). In fact, it should be studied for the literature in which it was reflected. Reality shows that literature, that is to say, the original texts by the great authors, is neglected in much of the process of learning, and students are obliged to practise particular uses through false phrases, invented for this purpose. (2017, pp. 31-32)

Under these circumstances, students will not understand why, thousands of years later, they have to study these ancient languages. However beautiful ancient Greek and Latin supposedly are, however rich their morphology and syntax, nowadays they are not studied for themselves but above all for the texts written in them.

The study of classical culture, of the Greek and Latin languages and literatures, is now a faint flame at risk of going out. This cannot be allowed to happen. But to safeguard these areas of study, it is necessary to return to the original texts in the most intense and authentic way possible. In 62 BC a year after his consulship, Cicero gave a short but beautiful speech supporting the poet Archias. He wanted to defend him from the accusation that he acquired Roman citizenship illegally, and he took advantage of the occasion to make a brilliant defence of the humanities. Among the arguments he wields in favour of Archias is the fact he is a poet: *saxa atque solitudines voci respondent, bestiae saepe immanes cantu flectuntur atque consistunt; nos instituti rebus optimis non poetarum voce moveamur?* (*Pro Archia poeta* 19). ("Rocks and deserts respond to his voice, wild beasts are often calmed and stopped by his song. Can it be possible that we, who are learned in better things, are not moved by the voice of the poets?")[3]. Should we who are so modern, so well educated and advanced, not be moved by the voice of the classics?

Notes

[1] On the history and use of the term classic cf. the brilliant pages of Fontán, 2001, pp. 35-41. On the importance of the classics, as well as Fontán, 2001, pp. 19-34, cf., among many others, Calvino, 1991; De Romilly, 1992; García Gual, 2017; etc.

[2] A good critical summary of the different methodologies currently used in the teaching of classical languages can be found in Mut i Arbós, 2017.

[3] Author's translation.

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Cultivating intelligence through mathematical language

El cultivo de la inteligencia a través del lenguaje matemático

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Abstract:

This paper sets out different contexts where mathematics helps create a thinking and reasoning habit, with special emphasis on problem solving. Intelligence is thought to be connected to problem solving ability and so we are interested in the relationship between intelligence and mathematical problem solving. These problems will be posed in a broad sense, not just considering classical written problems but also problems that appear in situations such as chess, magic tricks, and board games. These settings motivate students better, solving them requires different approaches, and they relate to other fields of knowledge. This paper reports on our experience of posing problems and reasoning with gifted students through magic tricks based on mathematical ideas and we give some examples of the activities we have done with them. We also present recreational mathematics as a discipline that promotes student motivation and increases curiosity and inquiry. We show some ideas from Miguel De Guzmán, Martín Gardner, and Raymond Smullyan that have been used in different frameworks. We describe some games that have been shown to be useful tools for creating reasoning schemas, presenting the particular case of chess as an educational tool. Finally, we set out some conclusions about the introduction of new materials, methods, and ideas for solving problems and we formulate a proposal for continuing this work and applying it in the classroom.

Keywords: educational resources, problem solving, cognitive procedure, recreational mathematics, practical intelligence, mind games.

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Resumen:

Este artículo presenta diferentes contextos donde las matemáticas ayudan a crear un hábito de pensamiento y razonamiento, con ramificaciones en la resolución de problemas. La inteligencia se asume asociada a la capacidad de resolución de problemas y es por esa razón que nos acercamos a la resolución de problemas matemáticos. Estos problemas serán planteados en un sentido amplio, no restringiéndonos a los enunciados clásicos, sino también a situaciones problemáticas que pueden aparecer en juegos como el ajedrez, juegos de magia y juegos de mesa y tablero, que son más motivadoras para los estudiantes y que requieren del uso de diferentes técnicas de resolución, además de estar interconectadas con otros ámbitos de conocimiento. Se expone la experiencia de planteamiento de problemas y razonamiento a través de juegos de magia basados en ideas matemáticas, llevada a cabo con estudiantes de altas capacidades, y se proporcionan algunos ejemplos concretos de actividades que se han realizado con estos estudiantes. Se presenta la matemática recreativa como una disciplina que abunda en la motivación de los estudiantes y el fomento de la curiosidad y la indagación. En esta línea, comentamos algunas ideas de M. De Guzmán, M. Gardner y R. Smullyan que se han utilizado en diferentes contextos. Se explican algunos juegos que se han demostrado de utilidad en la creación de pautas de razonamiento, exponiendo el caso concreto del ajedrez como herramienta educativa. Finalmente, se exponen conclusiones sobre la introducción de nuevos materiales, métodos e ideas con el objeto de resolver problemas y se formula una propuesta de continuidad y aplicación en el aula.

Descriptores: recursos educacionales, resolución de problemas, proceso cognitivo, matemática recreativa, inteligencia práctica, juegos de ingenio.

1. Introduction

Many students find mathematics difficult. This could be because it is a subject in which it is necessary to understand concepts and know how to apply them rather than memorising information, definitions, and procedures. There is no single definition of intelligence and different experts in the field often emphasise different aspects of one definition or another. Combining some of these ideas, intelligence is sometimes defined as a very general mental capacity that involves being able to reason, plan, solve problems, think abstractly, understand complex ideas, learn quickly, and learn from experience. All of the capacities mentioned in this description are inherent to mathematical problem solving. This might be why mathematics and its difficulty are often linked to intelligence; however, we do not set out to uphold this position here but instead simply to show the relationship that exists between the two: Even though mathematics is often regarded as complicated, the mathematics curriculum

for compulsory secondary education (ESO) in Spain and for the Spanish baccalaureate is accessible to any student who studies these subjects, but it is also common to find students who require more. Pedro Puig Adam, one of the pioneers of the study of mathematical education in Spain, said as early as 1951 that "Mathematics is the filter through which man studies natural phenomena; for their infinite complexity it substitutes the schematic simplicity of rational entities that logical reasoning can consider with ease; once the fruits of this process have been obtained, they can be interpreted in the field of reality" (Puig, 1951, p. 4). Luis Santaló (1966, p. 14) stated that "Doing maths is solving problems," placing this problem solving in a broad context "where mathematical concepts can appear, depending on the case, as the consequence of a problem or as a method for solving future problems, introduced as examples or as applications". We will return to these ideas below but we must emphasise that language is important: when confronting a problem, we must first understand what it is asking us to do, and to do this it is necessary to dominate language. Then we must solve the problem, and mathematical formalism is very useful for doing this. This uses a particular language that simplifies writing. Finally, we must interpret the solution and, to do this, again adapt mathematical language to everyday language. These ideas were also gathered and expanded on by Miguel de Guzmán in various writings, including academic articles, books aimed at teachers, and other books — also very important — intended for students but with extracurricular content: books with different problems, which showed cases of mathematics that changed the outlook on its application without necessarily introducing concepts different than those normally covered in class. Challenges, connections, generalisations, and applications are proposed. Mathematics is approached in this way as a body of knowledge that inspires thought and goes beyond the Proposition-Demonstration-Example scheme through which it is often demonstrated. Indeed, Guzmán was the creator and promotor of Spain's Royal Academy of Sciences' ESTALMAT programme for stimulating mathematical talent. In his words "it is in the solving of problems that we can acquire the true taste that has attracted and continues to attract mathematicians from all periods. From it, motivations, attitudes, habits, and ideas for developing tools, in a word, the very life of mathematics, can derive" (De Guzmán, 1984, p. 12).

The National Council of Supervisors of Mathematics (1977, p. 2) also stated that "Learning-to solve problems-is the principal reason for studying mathematics" and it may be that the most capable students, who need challenges, feel inclined to resolve and propose mathematical problems "taking into account the complex intellectual activity, the nature of difficulties which the student faces in solving problems is varied, ranging from perceptual

difficulties to those concerning his cognitive self-regulation" (Căprioară, 2015, p. 1859). Furthermore, problem solving is something that can be learnt. While it is true that certain individuals have a greater gift for certain types of reasoning than others, there are techniques for solving mathematical problems that might or might not be applicable in everyday life. In this respect, George Pólya, one of the most important scholars of the solving of mathematical problems and a major figure in problem solving techniques, notes that "the space devoted by popular newspapers and magazines to crossword puzzles and other riddles seems to show that people spend some time in solving unpractical problems. Behind the desire to solve this or that problem that confers no material advantage, there may be a deeper curiosity, a desire to understand the ways and means, the motives and procedures, of solution" (Pólya, 1965).

In line with Pólya, we will consider problem solving in a broad sense here. Not all of the problems we will refer to involve interpreting a text, formulating a model, doing calculations, finding a mathematical solution, and returning to the problem with words. Experience shows us that there are many different ways of posing problems and doing reasoning exercises. Sometimes the problem actually relates to statements where algebraic relations must be used, while in other cases the problems are geometric and can be solved with a ruler and compasses or with other instruments. A mathematical problem might sometimes involve explaining (or finding out) why a certain thing happens (a theoretical problem can be closely related to proving a mathematical result, but it can also tell us what the basis of a magic trick using cards is). Other problems can involve making all of the faces of a cube the same colour, as Professor Erno Rubik did with his architecture students. The famous object we now regard as a toy was actually designed so that Rubik's students could experiment with three-dimensional objects and rotations in space. The cube has ceased to be a problem as people who can solve it quickly have memorised the movements they have to do: after examining the cube they can return it to its initial position using an algorithm. But there was a moment when the mathematician David Singmaster (1981), using a suitable notation, solved the problem of making each face of the Rubik's cube the same colour. Similarly, chess and other board games can be used for mind training. We will discuss some of these experiences below.

In this article we not only describe the state of the question and the benefits of solving problems, posed in unconventional ways, for developing intelligence. We use examples selected from experience, which are intended to be of use for teachers, who we also hope will consider this methodology in depth and make their own proposals for resolving mathematical problems understood in a broad sense.

2. Recreational maths and the legacy of Martin Gardner

For 25 years, Martin Gardner wrote the mathematical games column in the journal *Scientific American* and it has been said of him that he "turned thousands of children into mathematicians and thousands of mathematicians into children". This column of mathematical games did not really contain simple games. Instead it presented big ideas that can be thought of as games but which contain an important mathematical element. To give one example, it was in his column that the RSA cryptographic method was made known. This is now used, for example, in digital signature protocols. The idea of teaching mathematics through interesting problems with an element of surprise and that could challenge the reader did not originate with Gardner and the 20th century. "Fun" problems are posed in the *Liber Abaci* by Fibonacci and in *De Viribus Quantitatis* by Luca Pacioli and Leonardo da Vinci, a book which also contains the first mention in literature of a magic trick using cards.

Gardner was an expert in choosing interesting problems that have appeal for the reader. He was also an expert on the work of Lewis Carroll and rescued many of his puzzles and word games for the general public (Carroll, 1885/2002, 1895/2014). Students are often accustomed to problems having a solution and also having just one solution. This is not always so in everyday life and Gardner gives an example of this:

If 6 cats catch 6 mice in 6 minutes, how many cats would you need to catch 100 mice in 50 minutes?

A first solution is that 12 cats are needed. The idea of proportionality (and averages) tells us that 6 cats catch 1 mouse per minute. Therefore, 6 cats would catch 50 mice in 50 minutes and so we would need 12 cats to catch 100 mice in 50 minutes.

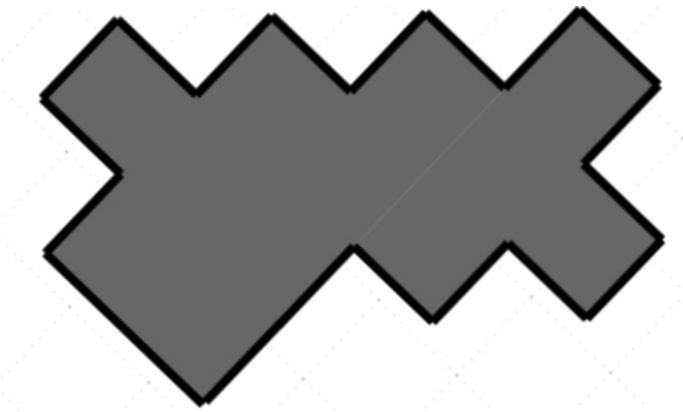
But... maybe what happens is that one cat catches a mouse in 6 minutes. Therefore, 1 cat will catch 8 mice in 50 minutes (it would actually take 48 minutes, but the cat would not have time to catch any more in the remaining 2 minutes). So, to catch 100 mice in 50 minutes, we would need 100/8 cats. Taking into account that the number of cats always has to be a whole number, we find that we need 13 cats (12 would only catch 96 mice).

This is an example he gives for reasoning and seeking different solutions. With it we stimulate ingenuity and it also shows how precisely mathematical problems have to be posed and that it is often necessary to make additional suppositions to those contained in the question.

This problem, which is original to Gardner, uses a completely different line of thinking — geometrical reasoning:

Draw a single line (not necessarily straight) that divides the figure into two parts of the same shape.

GRAPH 1. Geometrical figure.



Source: Own elaboration.

When approaching this problem we could perhaps print the figure and cut it into parts that are the same shape using scissors. The problem is not difficult, but it obliges us to think geometrically. Following Pólya's (1965) four step process for solving problems, we could start by calculating the area of this shape, and so we will know what the area of each of the parts we will separate it into must be. This can give us a clue and, if we are desperate, we could always consult the original (Gardner, 1994).

Gardner has many books in which he sets interesting problems, but he also has articles that help with teaching practice, like one in which he suggests using packs of playing cards to model mathematics (Gardner, 2000). Martin Gardner was not a mathematician but rather a philosopher and journalist with a strong interest in science, as he had wanted to study physics at university but owing to circumstances could not. His greatest merit was finding good problems and asking good questions, solving them or asking other mathematicians how they would solve them. Once he understood it, he had a special gift for sharing the mathematics he had learned. Again we find that the language of mathematics is fundamental. Every year all over the world, people pay homage to him in the "Martin Gardner Celebration of Mind". The name is a play on words. And again it is linked to the mind and intelligence.

3. Experience with gifted and talented students: mathematical magic

Everyone has different capacities or talents. Mathematical talent might emerge by itself, but it must also be taught. Since 2006 we have cooperated with PEAC, a programme for educational enrichment for gifted and talented students in the Community of Madrid. Many of the students who participate in the programme are, in some way, enthusiastic for mathematics, but the spirit of the programme is intended to build other capacities and explore transdisciplinary knowledge. For this reason, the

topics we have covered in the sessions with the students have focussed on examples of mathematics that have a strong component in other disciplines. When working on illusionism effects we encourage a specifically artistic vein. When people perform a magic trick, they have to think about their voice, how they interact with spectators, and how they act on stage at the same time as having to be vigilant of many details of what is happening around them.

The fact that the magic tricks presented have a mathematical basis also provides reasons for working out how a particular trick works. These educational enrichment programmes cover the education of students aged between 6 and 18. We observe a decrease in numbers attending in higher years. We have found that mathematical magic sessions work quite well with them. Possibilities range from geometrical or topological games with strings to games that can be done with paper and pencil and also card tricks (Álvarez et al., 2002; Blasco, 2016). As well as presenting a session every year at the PEAC, we have also collaborated with the FANJAC association in Girona (Duran, 2017), where we helped design an extracurricular programme on illusionism and education for a complete range of levels from year 1 of primary education up to year 2 of the Spanish baccalaureate. Obviously different games work with different age groups. While games involving colours or simple mathematical operations work best with younger children, with older ones studying combinations of cards or using them as models for questions relating to probability works much better.

We will include a small sample of the teaching resources cards can provide. Our students often know a card trick in which 21 cards are dealt into three piles. The description we give here is so that readers can try it themselves, but following similar steps the trick will also work, with an obvious adaptation, if you do it with another person.

Take a pack of cards and take any 21 cards from it. Shuffle these 21 cards, take one of them, look at it make a note of it or remember it. Put it back with the other 20 cards and shuffle them again. Now deal the cards, face up, into three stacks, making a note of the stack where the chosen card is. Take the stack containing the chosen card, put it in between the other two, and repeat the process: deal again, face up into three stacks, making a note of which one contains the chosen card. Do this operation one last time: deal the 21 cards into three stacks, making a note of which one contains the chosen card, and place this stack in between the other two. Now put the 21 cards face down and put the top 10 cards to one side. The card that is now in the top place in the pack (in reality, number 11) is the one that was chosen at the start.

This trick is a classic. It often features in the magic sets people give to children and was described by Claude Gaspard Bachet de Méziriac in one of the first books of recreational magic

(Bachet, 1612/1884). This trick helps introduce the concept of iterative processes: the same operation is repeated three times. In effect, you deal into three stacks, make a note of which stack the chosen card is in, and you put this stack between the other two. This set of instructions could also be written as an algorithm. This game of 21 cards also enables us to discuss fixed-point theorems, which are very important for solving equations. We speak about a fixed point because what happens after three iterations of the process is that the chosen card is located in the centre of the pack and this always happens, regardless of the initial position of the card. Doing this enables us to introduce mathematical concepts in an entertaining way. We could ask students to explain how the game works, perhaps giving clues and helping with their reasoning. To understand a mathematical concept it is very important to verbalise it: being able to explain to a classmate how to solve a mathematical problem helps to internalise it and understand it better. Often, when we explain something, we realise which steps in a demonstration that seemed obvious to us actually are not.

We will now see what happens:

- When 21 cards are split into three stacks, there are seven in each stack.
- When the stack with the chosen card is placed between the other two stacks for the first time, this card will be between positions 8 and 14.
- When you deal the chosen card for the second time, it has to be in the third, fourth, or fifth position in its stack (remember that at least seven cards were dealt before reaching it).
- When putting the stack containing the chosen card in between the other two, this card goes into position 10, 11, or 12 in the pack.
- When dealing for the third time into three stacks, first deal nine cards (three in each stack) and, depending on whether the chosen card was in position 10, 11, or 12, this card will end up in the first, second, or third stack respectively. Furthermore, it will always be in the fourth position in this stack.
- When you put the stack containing the chosen card back in between the other two, you move this card to position 11.

Up to here, we have analysed the trick. But we can get more out of it: we could ask if this can be generalised to other situations or adapted to other circumstances. The first thing we find is that if we use 27 cards instead of 21, the trick becomes more impressive. Strangely, the trick with 27 cards is much less well known than the version with 21. The process for this trick is similar to the previous one: shuffle the 27 cards, take one of them and remember it. Return it to the pack and shuffle again. Deal the cards face up into three stacks, making a note of which stack contains the chosen card. Take the stack containing the chosen card. Unlike in the previous

trick, you can place it on top of the other two, below the other two, or between them. Remember where you have put it and repeat the process: deal again, face up, into three stacks, making a note of which one contains the chosen card. You can put this stack at the top, in the middle or at the bottom. Remember where you have put it. Do this operation one last time: deal into three stacks, make a note of where the chosen card is and put this stack at the top, in the middle, or at the bottom. Coding the top position as 0, the middle as 1, and the bottom as 2 gives us a number of the form $x_3\ x_2\ x_1$ (where x_n represents the position of the stack after the *nth* dealing). For example, if the sequence is middle in the first dealing, top in the second, and bottom in the third, the coded number will be 201. Now it is time for the magic: if we call $n = 9x_3 + 3x_2 + x_1$ and we remove n cards from the pack, the next one will be the chosen card. This trick is also related to representing numbers in ternary instead of decimal and we can extract some other properties from it. We could even generalise it to more stacks and more cards in each stack (Quintero, 2006). This is a good exercise for thinking about why it happens this way.

These are simple examples of mathematical magic tricks, but the area is very broad and we can find other examples with other materials and other techniques. It would even be possible to prepare a magic trick to present each of the parts of the curriculum. But it is important to take care with magic tricks: we do not want students to think that in mathematics you "pull things out of your sleeve" but rather that in this discipline everything must be reasoned. It is also necessary to take care because when doing a magic trick we might find that students only see the entertaining or impressive part of the magic effect and that this hides what we really want to show as teachers: the mathematics behind the trick. If we decide to use this technique in class, we have to make sure the session is very well prepared.

One of the disciplines in illusionism is called *mentalism*. This type of illusionist pretends to have superior mental powers, including superior intelligence or a particular capacity for performing calculations. In reality, they know some techniques that the rest of the population does not (this is the general trend in all branches of illusionism) but this is precisely what makes them pass for people with an exceptional intelligence. It is true that capacities like memory, visual memory, or speed of calculation are factors that can contribute to higher intelligence and for some people these capacities are innate, just as other individuals can run the 100 metres in 9.58 seconds. Nonetheless, these capacities must be practised and there are techniques that can help people calculate quicker (Benjamin & Shermer, 2006; Coto, 2010). One example is "guessing" the last digit in a barcode: For example, the first 12 digits of the barcode associated with the ISBN of the book *Matemagia* (Blasco, 2016) are 978843442264. Something we can present as a magic game is asking students to tell us the first 12 digits of a bar

code they have and we tell them its last digit. They remember this as divination, but it is not really. The first 12 digits give us enough information to deduce the last one. This is because in any EAN-13 bar code the sum of the digits in the odd positions plus three times the sum of the digits in the even positions must be a multiple of 10. So, in the previous example, if we call the last digit — the unknown one — x, the ISBN of *Matemagia* is 978843442264x and by applying the property that all of these bar codes have and which we have just described, the result of (9+8+4+4+2+6+x) + 3 (7+8+3+4+2+4) has to be a multiple of 10, in other words, a number ending in 0. By doing calculations, we find that 33 + x + 84 has to end in 0 and so x must be 3.

A game of this type has many advantages from an educational perspective: on the one hand, doing it improves communicative skills, to do it well it is necessary to calculate correctly, and the student is doing sums mentally with an important goal: deducing the hidden number and being able to surprise other people. We do not do a set of operations simply for entertainment without providing some added value: here we are calculating with a goal. Furthermore, we are working on an important concept: the multiple of a number and its properties. The teacher could even suggest that the students design bar codes with other properties (these do exist in the real world) and make their own rules. This game (and other similar ones) also introduces an important concept: bar codes contain redundant information, which mathematicians call error detecting codes. This information makes it possible to establish whether the number that identifies the article has been correctly entered into the system. The computer reads the 13 digits, performs a calculation, and decides if it is a valid barcode or if there has been a transcription error. This is the same idea found in serial numbers on tickets, in the letter on Spanish national identity cards, or in the checksum platforms provide when you download software. These are places where mathematics appears without us realising it is there.

Our experience of presenting mathematical magic tricks with students at different educational stages, specifically with gifted and talented students, has always been positive and we find that students are interested in knowing how the games work. In reality what we do is solve a problem where the question does not appear in a standard form as in other contexts. On this point, what we have done is an experiment and a proposal. Given the small size of the groups with which we have done this and the impossibility of providing continuity in these programmes or using scientific methods such as control groups owing to the programmes' extracurricular character, what we suggest should be regarded as a methodological proposal.

4. Chess and other games to exercise the mind

In Spain, as long ago as 1995, the senator José Marcelino Galindo Santana

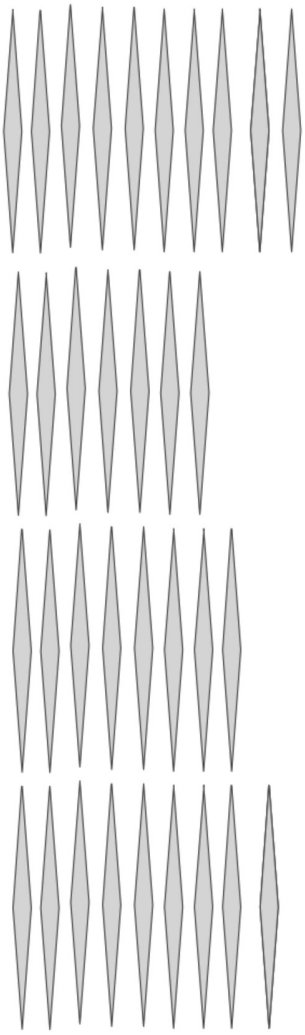
proposed that chess should form part of the extracurricular activities in General Basic Education and be an option in Compulsory Secondary Education (Senado de España, 1995). In 2012, the European Parliament recommended member states include chess in their curricula (European Parliament, 2012), recognising the pedagogical value of this game. More recently, Spain's Congress of Deputies also unanimously approved a parliamentary discussion document to introduce chess in schools. Several of Spain's Autonomous Communities have introduced it in their range of optional subjects.

Owing to the particular characteristics of chess and the people who play it, a number of studies have been carried out that show that it has positive effects from an educational viewpoint, and that it helps naturally develop aptitudes such as memory, the ability to concentrate, problem solving, and logical-mathematical reasoning. Machargo, García, Ramos, and Luján (2002) studied its relationship with psychological development, while Aciego, García, and Betancort (2012) emphasised the benefits of playing this game for intellectual and emotional enrichment. On the international stage, Jankovic and Novak (2019) also support the use of chess as an educational tool. Progress is still being made every year in this field, with new doctoral theses moving this line of work forward (Gardiner, 2018) and studies that quantify the relationship between chess and mathematical training (Burján, 2016; Rosholm et al., 2017). Similarly, chess has been shown to be of use as a vehicle for teaching problem solving to students with learning difficulties (Scholz et al., 2008; Storey, 2010; Barret & Fish, 2011; Khosrorad et al., 2014). Nonetheless, there are no unified criteria for the usefulness of chess as an educational tool that improves intelligence. Accordingly, various studies have been published (Gobet & Campitelli, 2006; Sala & Gobet, 2016, 2017; Jerrim et al., 2017) that note that the methodology used to measure the influence of the use of chess in mathematical education is not adequate and that, in any case, this influence is not significant, in contrast to what is stated in most of the articles on this question. Responses have appeared (Bart, 2014; Subia et al., 2019) and discussion and research about whether or not playing chess is good for mathematics continue.

Chess is a game that was not specifically designed to improve mathematical skills. However, other games were specifically designed to develop mathematical language. Apart from the example above of the Rubik's cube and how David Singmaster developed a notation that led to its resolution, one very well-known example is Nim (Bouton, 1901; Baron, 1974), which involves several piles with various objects in each of them. The game is played by two players. When it is their turn, each player must choose a single pile and remove as many objects as they want from it. The key thing is that they must remove at least one. The player who removes the last item wins. Depending on the initial

configuration, one player or the other can define a winning strategy. To define this strategy, a command of the binary number system is very useful and in this game we do directly find a connection to mathematics.

GRAPH 2. Nim.

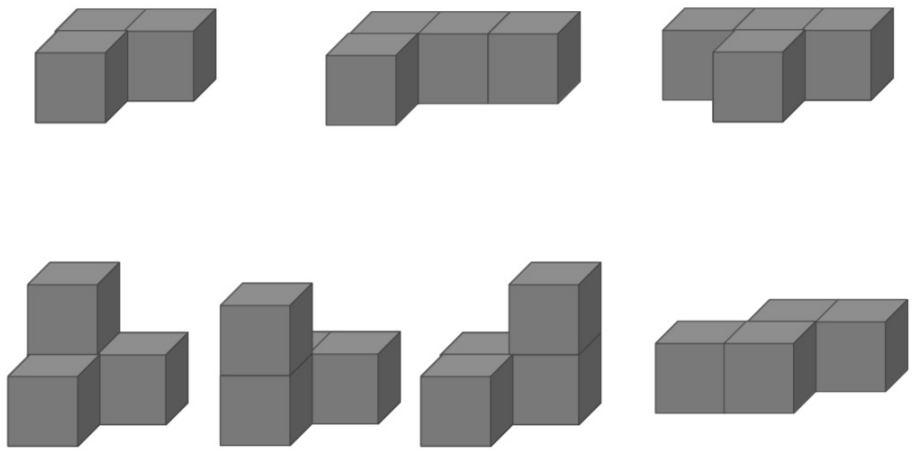


Source: Own elaboration.

Older and less well known than the Rubik's cube is the Soma cube (Peter-Orth, 1985; Gardner, 2008; Rupérez & García, 2010), invented by the multitalented Piet Hein. It is said that he came up with it while he was in a lecture on quantum physics delivered by Werner Heisenberg, when he started

thinking about how he could combine unit cubes into parts from which he could build a larger cube. The Soma cube comprises 7 parts, 6 of which are made up of 4 unit cubes and 1 of just 3 unit cubes. The first proposal is to make a cube with these parts (there are 240 ways of doing it) and from there it is possible to think about making other shapes with these parts. The game works in a similar way to how a tangram is made, but the structures are made in three-dimensional space instead of being flat. The game helps develop spatial geometric intuition and, there are also thought processes that make it possible to deduce which parts can or cannot go in a particular space.

GRAPH 3. Soma cube.



Source: Own elaboration.

We have set out to identify the value of games in setting mathematical problems and have presented two classic games that we can tackle using resolution strategies that ultimately follow the same patterns as the strategies for solving problems that we mentioned at the start of this article. Games are also regarded as an effective tool in mathematical education but, as in the case of chess, there are few studies based on scientific results to support this thesis, and as Bragg observes (2012, p. 1446): "Thus, it is important to research whether games really are useful in teaching mathematical ideas. The research question used as a basis for this paper is whether games result in better learning of mathematics than do non-game activities". In this same article he concludes that the benefit of learning based on games compared to learning that does not use this ludic component is statistically significant, at least in the earlier stages of education, which is where the experiment is performed. This methodological doubt appears in earlier writings by the same author (Bragg, 2007).

5. Conclusions

Problems, in mathematics, can appear in many distinct forms. Sometimes a problem involves explaining why a certain phenomenon occurs. This directly involves abstraction and deduction skills. In other cases, problems can be posed simply as problems from geometry; geometry requires very few mathematical concepts and is a very instructive discipline because it obliges students to think spatially. We have described our experience of promoting intelligence and problem solving through mathematical magic in two distinct areas, but we note that further research is necessary in this area: our experience must be quantified and supported by the scientific method, and so there is still work to be done.

Elaborating on this idea, we have found that there is no unanimous position in the scientific literature regarding the use of chess as a tool that significantly helps to develop mathematical competences. Similarly, we have investigated whether games are a good tool for achieving this aim and, again in the absence of further or more rigorous research, we have found that certain games do have a positive influence on the acquisition of mathematical skills. Especially in certain ambits.

We are aware that it is very difficult to carry out rigorous experiments relating to the topics discussed above, but it is also essential to continue with research and even to publish possible negative results: it is important to know when an experiment has not been successful so that different approaches can be used. There are many mathematical games and problems that have been used for a long time and teachers' experience is what backs up their use. Perhaps now is the time to move from this common practice to a qualitative and quantitative analysis of these techniques and a transdisciplinary line of research can be opened.

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Awe: An emotion for accessing wisdom

El asombro: una emoción para el acceso a la sabiduría

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Abstract:

Awe is a classic concept with an important place in the history of philosophy, since it is regarded as the beginning of the development of thought, as we know it today. However, until now it has historically received little attention in the field of education, although in recent years it has been the subject of renewed attention for a variety of reasons. These include a growing discomfort with curriculum designs that reflect a frenetic culture with a clear tendency towards activism and instrumentalism. This work explores the concept of awe, considering some current approaches from the philosophy of education, at the same as providing new perspectives, considering the links between awe and wisdom as well as conditions that make awe possible, such as humility, gratitude, contemplation of the environment, and appreciation of the intrinsic value of what is observed. Moreover, it suggests three areas for fostering awe in schools. These include: creating opportunities for contact with truth, beauty, and goodness; promoting a greater immersion in natural environments; and reducing the pace of educational activity.

Keywords: philosophy of education, emotion, thinking, moral education, art, environmental protection.

Resumen:

El asombro es un concepto clásico con un carácter simbólico en la historia de la filosofía en cuanto que es concebido como el inicio del pensamiento tal y como lo conocemos hoy. Sin embargo, la atención que ha recibido en el ámbito educativo ha sido muy limitada hasta el momento, observándose en los últimos años una atención renovada, motivada por diversas razones, entre las que se encuentra un creciente malestar con unos diseños curriculares que son reflejo de una cultura que vive a un ritmo frenético, con una clara tendencia al activismo y a la

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instrumentalización. En este ensayo, se explora el concepto de asombro partiendo de algunas aproximaciones recientes desde la filosofía de la educación, al mismo tiempo que se proporcionan nuevas perspectivas, prestando especial atención a su relación con la sabiduría, así como a algunas condiciones que lo posibilitan, como la humildad, la gratitud, la contemplación del entorno y la apreciación del valor intrínseco de lo observado. Se sugieren, además, tres áreas susceptibles de promover el asombro en las aulas, que implican generar oportunidades de contacto con la verdad, la belleza y la bondad, favorecer una mayor inmersión en la naturaleza y reducir el ritmo de la acción educativa.

Descriptores: filosofía de la educación, emoción, pensamiento, educación moral, arte, conservación de la naturaleza.

What is the meaning of life? That was all — a simple question; one that tended to close in on one with years. The great revelation had never come. The great revelation perhaps never did come. Instead there were little daily miracles, illuminations, matches struck unexpectedly in the dark; here was one. This, that, and the other; herself and Charles Tansley and the breaking wave; Mrs Ramsey bringing them together; Mrs Ramsay saying, "Life stand still here" … This was of the nature of a revelation. In the midst of chaos there was shape; this eternal passing and flowing (she looked at the clouds going and the leaves shaking) was struck into stability. Life stand still here, Mrs. Ramsay said.

To the Lighthouse.
Virginia Woolf

1. Introduction

Although awe and wisdom are familiar concepts for us, their presence in the educational sphere is uncommon and they seem more like notions from other times, remnants of an antiquated mentality that is of little relevance in contemporary societies. These words are not commonly found in educational legislation or curricula (González Leandro & Cabrera, 2019), and until a few years ago, they were not the subject of pedagogical research (Schinkel, 2017). However, a detailed analysis not only reveals distinctive and important contributions for education, but also a strong connection between them. This is the aim of the present paper, which starts by considering the concept of awe, before analysing its link to wisdom and pausing to show some constituent elements and conditions that make this possible. Finally, it identifies three possible paths for development, which make educating in awe possible in educational institutions.

2. Rediscovering awe

One of the most important — and at present least common — strategies for accessing wisdom is what we might call awe. Awe is a complex emotion that

tends to appear when we encounter a wide range of imposing stimuli and experiences (Schinkel, 2020), that have the capacity to shift our attention away from ourselves towards the exterior, making us aware that we are part of something bigger that transcends us (Allen, 2018). It involves recognising the small part we play when faced with the immensity of the world, perceiving the limitations of our capacities for thought and action (Quinn, 2002), our limited influence on what happens in an extremely complex reality, which does not depend on us for its existence but which has its own dynamic that is in many cases incomprehensible, mysterious, and unfathomable for us. It is precisely this complexity that takes us aback and startles us, at the same time as astonishing us, thus producing the effects that are essential to awe. Sometimes, these effects are caused by great beauty, like the perfection of a rose or the majesty of the flight of an eagle, at other times they are due to scale and grandeur, like the dizzying height of a tall cliff or a great mountain, and at other times they are due to both reasons at once, like the size and depth of the sea or the vastness of a starry sky on a clear night.

But is not just nature that can inspire this emotion in us; we also feel awe before acts of great human kindness, self-sacrifice, unconditional love, dedication to others, selflessness, solidarity, or unselfish service. Acts we admire and in which we recognise an overwhelming value which is the cause of awe. We also feel awe before a range of human creations such as complex theories, sophisticated philosophical arguments, and, of course, great works of art. Who among us can say they have never felt butterflies in their stomach or a sudden warmth, have never found themselves unwittingly open-mouthed or felt tears welling up as they admire a painting by Velázquez or a work for the ages like the Sistine Chapel, listen to a symphony by Mozart or Beethoven, or read the poems of Saint John of the Cross or Saint Teresa of Ávila? Ultimately, awe is accompanied by a perception of extreme grandeur in something that transcends individuals' ordinary mental structures, breaks with their prior schema when encountering an event that is unforeseen, unexpected, different from what has gone before, which does not fit the moulds of the ordinary that normally enable us to interpret the world, something that, therefore, requires an exercise in psychological adaptation to what has been observed (Keltner & Haidt, 2003).

A slow reading one of Saint Teresa of Ávila's most famous poems, from the 16th century, might help understand this better (2005, p. 93):

May nothing disturb you,
nothing frighten you;
all things pass,
God does not change.
Patience
achieves everything
Whoever has God
Wants for nothing.
God alone is enough.

Regardless of the reader's religious beliefs or lack of them, this poem is striking

for its overwhelming faith and trust in God, which seems to surpass the comprehension of ordinary mortals[1]. Alongside its poetic beauty, its simplicity and clarity are also striking, as is its ability to say so much in so few words, to transmit love and serenity to the reader. Its direct style evokes a voice whispering in one's ear. The serene rhythm allows us to hear the author's tone of voice in our minds, raising our thought above ourselves, *transcending ourselves*.

Although there are connections between them and they sometimes appear together, awe should be distinguished from other similar concepts such as surprise which occurs suddenly and unexpectedly but does not have to be motivated by something exceptional and quickly fades when it is discovered. Curiosity is another similar concept to awe, which nonetheless has a more generic character that does not require the cognitive conflict awe entails (Schmitt & Lahroodi, 2008), a conflict which focusses itself on the limits of our own frameworks and categories of understanding, opening the possibility of transcending them (Schinkel, 2020). In some way, it could be said that the break with what has been previously established caused by experiences of awe — this discontinuity in thought that demands new categories and creates something new, which some now call epiphanic experiences — momentarily alters our conscience, separates us from ourselves, transcends us. Therefore, they require new ways of thinking and being, an adaptation to the new reality that has been uncovered or, to put it another way, a wider reality than the one we knew before. They expand our perspective of the real, expand our mental frameworks, make them flexible, and open our minds and so we can therefore say that these experiences are potentially transformative for human beings.

In this case, these experiences can be defined as educational given that they show themselves to be capable of making us better as human beings. In a moral sense, the educational contribution revolves around its capacity for reducing our egocentrism, as it helps us to stop seeing ourselves as the only or main referent in the world and places us in a position to consider other beings who share our existence and to feel a link with them. Some studies have shown that experiences of awe help reduce materialism in people, generating attitudes of generosity towards them and of respect for nature (Allen, 2018). Accordingly, the philosopher Otto Friedrich Bollnow (1969) stated that open spaces have the ability to broaden the soul. Referring to Petrarch's ascent of Mont Ventoux, Bollnow noted that:

> the state of mind determined by the spatial vastness immediately transforms into a new expansion of the soul. The orientation of thoughts towards the incommensurable breadth of the soul is then inextricably linked to the broadness of the spatial panorama. It is the same extent of the vision, which now directs itself to temporal remoteness, and it is the same alarming sensation of the infinity of space that reveals itself in the incommensurable inner world as the immensity of the soul. Deep inner agitation is only possible through the solemn experience of spatial vastness. (p. 83)

The distinction C. S. Lewis (1960) made between need-pleasure and pleasure of appreciation can also help us understand the educational value of awe. The former type is fleeting and disappears suddenly when the need has been satisfied, like when we drink a glass of water when very thirsty, the value of which is instrumental or *disposable* and we only appreciate it until our desire has been sated. In turn, the second type not only pleases our senses but also requires us to appreciate it, admire it, and sometimes love it for its goodness. According to Lewis (1960): "it is the starting point for our whole experience of beauty .... It is the feeling which would make a man unwilling to deface a great picture even if he were the last man left alive and himself about to die; which makes us glad of unspoiled forests that we shall never see." As an example, he noted that:

> The connoisseur does not merely enjoy his claret as he might enjoy warming his feet when they were cold. He feels that here is a wine that deserves his full attention; that justifies all the tradition and skill that have gone to its making and all the years of training that have made his own palate fit to judge it. There is even a glimmering of unselfishness in his attitude. He wants the wine to be preserved and kept in good condition, not entirely for his own sake. Even if he were on his deathbed and was never going to drink wine again, he would be horrified at the thought of this vintage being spilled or spoiled or even drunk by clods (like myself) who can't tell a good claret from a bad. (p. 24)

In this way, we could put awe among the so-called peak experiences, defined by humanist psychology as "ecstasy, or sudden insight into life as a powerful unity transcending space, time, and the self. Peak experience may at times occur for individuals in their pursuit of self-actualization" (American Psychological Association, 2020). More specifically, Maslow's well-known pyramid of the hierarchy of human needs places this type of experience, which can happen in everyday life and so is open to all individuals, at its apex. According to Maslow (1987, p. 345):

> Self-actualizing people have the wonderful capacity to appreciate again and again, freshly and naively, the basic goods of life, with awe, pleasure, wonder and even ecstasy, however stale these experiences may have become to others .... Thus for such a person, any sunset may be as beautiful as the first one, any flower may be of breath-taking loveliness, even after he has seen a million flowers. ... The thousandth baby he sees, is just as miraculous a product as the first one he saw. He remains as convinced of his luck in marriage thirty years after his marriage and is as surprised by his wife's beauty when she is sixty as he was forty years before. For such people, even the casual workaday, moment-to-moment business of living can be thrilling ....

3. Awe, wisdom, and other constituent conditions

Once we have explored the concept of awe and some of its contributions to the moral dimension of education, we should consider its contributions to the intellectual education of human beings and more specifically how this relates to wisdom or why experiencing awe can help us be wise.

In effect, if we look back to the dawn of the history of philosophy, we can see how humankind changes course when it pauses the process of its existence before phenomena and reality. It stops before them, observes them from outside, is surprised and astonished — *thaumazein* — by what it faces and starts to ask itself questions: "What is this? At this moment, philosophy begins" (Marías, 1975, p. 4). Plato agrees with this in *Theaetetus* (155d) as does Aristotle later and more specifically in *Metaphysics*, where he states (book 1, part 2):

> For it is owing to their wonder that men both now begin and at first began to philosophize; they wondered originally at the obvious difficulties, then advanced little by little and stated difficulties about the greater matters, e.g. about the phenomena of the moon and those of the sun and of the stars, and about the genesis of the universe. And a man who is puzzled and wonders thinks himself ignorant (whence even the lover of myth is in a sense a lover of Wisdom, for the myth is composed of wonders); therefore since they philosophized order to escape from ignorance, evidently they were pursuing science in order to know, and not for any utilitarian end. And this is confirmed by the facts; for it was when almost all the necessities of life and the things that make for comfort and recreation had been secured, that such knowledge began to be sought. Evidently then we do not seek it for the sake of any other advantage; but as the man is free, we say, who exists for his own sake and not for another's, so we pursue this as the only free science, for it alone exists for its own sake.

Several inter-related ideas can be found in Aristotle's words here. The first is one discussed above regarding the importance of awe for knowledge, and alongside it there are others that consider the comprehension of the closeness of these two concepts in greater depth and show some necessary conditions for awe and access to wisdom to be possible.

3.1. Two conditions: humility and gratitude

The second important idea is the recognition of one's own ignorance as part of awe. This brings us to Socrates, whose iconic phrase "I know that I know nothing" reveals one of the character traits linked to wisdom: humility. This link is also mentioned in the Old Testament in the book of book of Proverbs where it is attributed to the wise King Solomon: "When pride comes, then comes disgrace; but with the humble is wisdom" (Prov. 11:2). Descartes made a similar declaration of humility, when he said "I would give everything I know for half of what I do not know," recognising the insignificance of human beings before the cosmos, even those who stand out for their rationality and wisdom. Nowadays, a humble position contrasts with the narcissistic showcases of social media, the most widespread uses of which involve showcasing one's own qualities and an exaggeratedly happy life, where small achievements are overvalued and do not reflect the limitations and the inevitably imperfect lives of individuals. As is symbolised by the mirror held by the statue of prudence in the Cathedral of Nantes (Davis, 2020), knowing one's own limits is one of the distinctive characteristics of a wise person (Csikszentmihalyi &

Nakamura, 2005), while accepting them is a sign of intellectual excellence (Guitton, 2006, p. 85). Humility could then be defined as a responsible, honest, and calm recognition of one's own limits that provides a balanced and correct view of oneself, without under- or over-estimation (Pieper, 2017), as well as a calm openness to others, to their criticisms and contributions (Spezio, Peterson, & Roberts, 2019), accepting that, even though nobody is perfect, there can be some value in them and a possibility for admiration and learning. In this sense, humility could be said to comprise one of the components of the shared ground or the preconditions of wisdom and of the capacity for awe.

More specifically, this link between awe and humility can be observed in the concept of immersive or transpersonal humility defined by Waks (2018), who first distinguishes between negative humility — a type involving humiliation and poor self-perception — and positive humility, which, in turn, should be divided into various types. The first two focus on a self-critical position, characteristic of people who are self-critical and receptive to what they might perceive in others, especially in settings with people from different backgrounds and cultural origins, which provide opportunities to question one's own ideas without therefore coming to undervalue oneself. While these characteristics are typical of people who are capable of feeling awe, given that they are open to their surroundings and to being transformed by them, the immersive or transpersonal vision of humility has an even deeper connection to awe. In this third concept, attention is transferred from the self towards the exterior, blurring the boundaries that separate it from its surroundings, enabling it to perceive itself as part of a whole, a community in the broad sense that does not perceive others as threats to the self but as contributions that enrich the whole and for which it feels gratitude. In this way, there is no underestimation of oneself, but rather a recognition of something greater, to which one contributes along with other individuals (Waks, 2018).

Another element that is closely linked to humility and awe now appears, which not only shares with the others its current state of neglect (Luri, 2018; Bollnow, 1960), but also a predisposition in individuals to position themselves outside the centre of their thought, to abandon egotism and recognise value outside of themselves without referring to its usefulness for them. While expressing gratitude for small acts in the social relations in everyday life facilitates cordial relations with others and is an example of good manners, it does not adequately reflect the depth of gratitude, which has an important moral component and is based on a distinctive expression of affect (Carr, 2015). So, we understand gratitude as a disposition to recognise the value of a gift that has been received, which does not necessarily need a response, exchange, or equivalent act to offset it, but that simply happens. The recipient's response is the act of giving thanks. We also know that to be grateful, it is necessary

to be humble, as nobody is sincerely grateful for something they think they deserve, since what one deserves is what one is owed, that which cannot justly be otherwise. Nonetheless, something for which we are truly grateful is something that exceeds our capacity and merit and this specific recognition is only possible through humility. Accordingly, gratitude and humility are connected to awe and wisdom. Humble people can feel awe and gratitude for what they observe. In contrast, arrogant people do not feel surprised for anything and they do not feel sincere gratitude because they believe they do not owe anyone anything and so consider any gifts they receive to be what they deserve or even less than their own self-perceived worth.

3.2. Avoiding instrumentalism and activism

The third idea that should be noted in the quote from Aristotle about the origin of philosophy is the one that refers to the usefulness of awe, or rather its absence. Awe is not necessarily linked to a specific external aim, but instead has value and relevance in itself as we do not feel wonder or amazement for the purpose of achieving something, as it has no other aim than the very act and feeling of awe. Accordingly, the wine Lewis (1960) mentions is not good because I am going to drink it, but instead is good in itself, and I am happy for its very existence and goodness, while the nature we observe does not ask us to look at it, listen to it, and pay attention to it. This characteristic again contrasts with certain current cultural traits, where a very narrow sense of utility is dominant (Ordine, 2013), and only things that yield a measurable profit are valued, things that can be quantified and demonstrate an objective value, forgetting that there are things that are of little use but of great value (Esteban & Fuentes, 2020). This might be why experiences like looking at a painting, listening to classical music, or reading quality literature have ever less space in school curriculums and the study of the humanities is increasingly given less room at different educational stages (Nussbaum, 2012).

Awe however involves a certain inaction and deliberation in the sense of not intervening in what is observed and admired. It is contemplation of reality, recognition of its goodness and grandeur as it is, acceptance even in its imperfections, and so it does not require us to participate in it or modify or manipulate it. This approach might be said to involve a focus that differs from the one Marx paradigmatically set out in his famous Eleven Theses on Feuerbach (1988), where he states that "The philosophers have only interpreted the world, in various ways. The point, however, is to change it." It also differs from Arendt's criticisms of Plato and Aristotle, in particular their contemplative awe, which she calls *speechless wonder* (2004, p. 449) as in her view, focussing fully on the beautiful and the extraordinary involves evading our political responsibility to the world and is a dangerous precursor, given that, as Plato and Heidegger showed, when the gaze returns to the ordinary process of life, decisions become tyrannical

and disastrous (Arendt, 1971). Nonetheless, the sense of awe goes beyond the reductionist concept Arendt proposes here, which she modifies significantly in *The Life of the Mind* (1984), when in answer to the question *what makes us think?* she conceives awe as that "wonder [which] has led to thinking in words" (p. 144). In Arendt's double vision, it is perhaps possible to see the distinction some authors make between an active awe, more akin to curiosity, which has an inquisitive character and is inclined to exploration, and a more contemplative form that observes the world as it is, recognises its inherent value and makes us aware of the limits of our understanding (Schinkel, 2017). However, even in the case of the second less active sense of awe, Pieper's observations (1974) where he attributes to celebration a series of characteristics that can be attributed to awe are very pertinent. For this German philosopher, celebration requires a calm approach to thought, an absence of concern with the success or failure of the activity, and also the presence of a sense of love, as anyone who does not love will be unable to feel joy. Consequently, elements of awe are similar to celebration in that awe involves certain requirements such as a degree of calmness to be able to observe, tranquillity that allows full attention, and concentration on what is being observed. Furthermore, it involves a distance from reality to facilitate openness to the infinite and avoid the temptation to intervene. This illustrates another difference between awe and curiosity, namely that curiosity constantly seeks something new motivated by a desire to know and to find new challenges, giving it a character that is to some extent instrumental and views the world as a resource to be consumed whose value lies in its capacity to sate our hunger for knowledge. Awe, in contrast, has an inoperative relationship with the world, where attention and care are above knowledge and purpose. In this way, curiosity could be likened to *curiositas* and awe to *studiositas*, where the latter regards the world without haste, without a predefined direction, but with an immersive consideration that takes us beyond ourselves and gives us time to consider the immeasurable form of the world, that which slips through our fingers and cannot be grasped (Di Paolantonio, 2019).

4. Strategies for teaching how to feel awe

If the experience of awe is as gratifying as I have argued and has so many benefits for the human being, it is worth asking why young people generally prefer listening to reggaeton instead of Beethoven, or why many adults choose celebrity journalism instead of great documentaries about the wonders of nature. L'Ecuyer (2020) assesses the reasons that have led to this situation. One of them lies in the overstimulation society as a whole and children in particular has been exposed to in recent years, as a result of people accepting as valid the premise that the more stimulation children receive and the earlier, the greater the benefit and the better for their cognitive development. This overstimulation

is not just ineffective, as various studies have shown (Tough, 2012), but it also helps to extinguish the spark of children's natural curiosity and capacity for awe when encountering small and spontaneous things, which is an unsurpassable internal motivation for discovering the outside world (Dewey, 1910). Excess activation of the senses overwhelms children's capacity for attention, and so they find it hard to remain committed over time and have an irresistible urge for rapid variation of stimuli. This could explain the increased numbers of children diagnosed with attention deficit disorder and hyperactivity in different countries around the world (Xu et al., 2018), as well as the major deficiencies in the ability to pay attention, as many educators report, who have come to regard this question as "the most important pedagogical challenge of the present" (Luri, 2018, p. 35). Furthermore, overstimulation in some way de-energises children, who no longer have to seek stimuli by themselves but find they come to them *en masse* in an unmanageable flood. Constant exposure to stimuli results in habituation to this type of surrounding, and when the level of stimulation falls, children note its absence and require an increase, with boredom, demotivation, and apathy resulting if it does not happen. This overstimulation has various sources, ranging from excess exposure to screens to a frenetic pace of life with the day packed with activities from the early years of life, with children taken from one place to another and barely having time to play freely, experiment by themselves, observe nature and stop to think about it, to ask themselves about its causes, its processes, its agents, its times. In this way, the insidious conditions of contemporary working life identified by Sennett (2000) at the turn of the millennium and characterised by constant change that undermines the establishment of stable and lasting commitments in social and family relationships, and also undermines the inner life and emotional health, seems to have been transferred to childhood.

Another factor that, according to L'Ecuyer (2020), might explain difficulties in feeling awe is a lack of boundaries and rules in childhood, often resulting from parents lacking time to devote to their children, and so trying to compensate with a lax and poorly understood application of discipline and liberty in which boundaries are seen as an inevitable evil that must be accepted and, if possible, eliminated, instead of being seen as a constituent element of reality and the human condition that enables development and makes it possible to achieve higher-order benefits (Reyero & Gil, 2019). In this way, when there are no limits to the will, we tend to think that anything is possible, that everything depends on us and on our cravings, and that it can be achieved just in the moment when we desire it. This type of education involves making the child the centre of the universe, which rotates around her, something that involves exactly the opposite effect to awe. If the child alone matters and everything is at her service, she will not be able to be astonished by anything, will not appreciate the beauty of reality outside of herself, and will not

develop valuable character traits such as gratitude or humility. Recent theories about the humble personality show precisely that this consists of an absence of vices such as conceit, grandiosity, domination, arrogance, vanity, pretentiousness, or envy (Spezio, Peterson, & Roberts, 2019). For the child, everything and everyone will be just a means to an end: satisfying her will. Consequently, nothing will have any intrinsic value, but will only be of value for its ability to meet her desires. Similarly, time is shown to be a decisive factor, as if one is accustomed to receiving everything instantly, patience stops making sense and one can no longer wait for things to happen in their own time, as everything has to be quicker in accordance with the pace one sets.

Starting from these ideas, we will define some educational strategies that can be implemented to promote awe.

4.1. Opportunities for contact with the truth, beauty, and goodness

According to Kristjánsson (2020), peak experiences like awe can help restore the Aristotelian concept of human flourishing in the classroom, understood in general terms as the optimal development of individuals' capacities, making it possible for them to attain high levels of freely chosen objective excellence. To do so, this author suggests that it is necessary to offer students the opportunity to experience contact with ideals of truth, beauty, and goodness. In effect, owing to the sudden nature of experiences of awe that Maslow identified (1987), it is not easy to identify when they might happen. In other words, witnessing admirable act of goodness or self-sacrifice or encountering a work of art or a natural phenomenon of great beauty does not generally happen every day or everywhere, and so relying on chance for our students to have the opportunity to contemplate this type of situation would not be very encouraging. However, in narratives of different formats, we can find numerous examples of heroism, beautiful stories of love and friendship, evocative descriptions of landscapes, or images that can transport us to distant times and places and bring us into dialogue with great historical figures that make us enjoy ourselves and feel wonder with their way of writing and creating new worlds.

However, making our students feel moved by such ideals of truth, beauty, and goodness is not always easy. Whether it is the historical distance between them, intergenerational differences, language from other times, the fact the recommendation comes from a figure of authority, or the difficult competition with the audiovisual and technological culture and superficial and second-hand but attractive messages from the media, there is an apparently uncrossable abyss with the exceptional personal adventures that great works of art make available to them. The overstimulation discussed above is an obstacle that is hard to overcome when faced with long texts that require a degree of patience and sustained attention over time. Nonetheless, educators are responsible for building the bridges that bring new generations into

contact with these ideals, since these ideals are the best they can offer their students for their education, and in some cases, especially with the most vulnerable students, this might be their only opportunity to have contact with sublime ideals of truth, goodness, and beauty as, if this does not happen at school, it might not happen anywhere else.

The American critic David Denby (1996) recounts his experience as a student at Columbia on the *Lit Hum* — literature and humanities — course dedicated to reading the masterpieces of Western literature and thought, which was established in 1937 at this university. Plato, Sophocles, Saint Augustine, Kant, Woolf, among others, form part of a selection which, as Denby himself recognises, is always open to debate and change, but which always provides a foundation, a starting point that does not rule out reading other works from different traditions. More specifically, I will refer as experiences of awe to the first and the last text in this selection, which starts with the *Iliad*. Denby shows the masterful ability of Homer's poem to bring us into contact with startling ideals of heroism and, at the same time, violence and cruelty. He takes us to a world of contested readings of its moralising capacity, but where "the Iliad in its ambivalence about glory and death challenges most of our current ideas about what is right and wrong, what is true, what is heroic, and finally, what is human" (Denby, 1996, p. 51). In a different sense, regarding the novels of Woolf, he suggests that reading them produces a feeling that "may be derived from memories of contentment as a child, an early experience not just of sufficiency but of *suffusion* …. The sensation is impersonal and non-egotistical, akin to a religious swelling out into the universe. Not: I am large enough to take all this in. But: All this immensity is happening before me" (p. 432).

4.2. Immersion in nature

A second educational strategy for promoting experiences of awe is conscious interaction with the natural setting. Unfortunately, the hectic life of big cities limits our chances of coming into frequent contact with nature and creates more difficulties for experiencing this emotion directly. In the 1960s, the American biologist Rachel Carson warned that spring had fallen silent in cities, that birdsong was no longer heard, drowned out by the noise of civilisation and the effect of pesticides. This author, who is regarded as one of the precursors of nature conservation, wrote an article called *The sense of wonder*, in which she recalls her experiences with her young nephew Roger in the woods and by the sea in Maine (USA). She understood awe as an incentive to discover the world, recognise its beauty, and enjoy life itself, for which, the adult must accompany the child in discovering his surroundings and together marvel at the mystery of them.

In a similar way to what happens with curiosity, the capacity for awe tends to reduce with age. The expression *being unconcerned with everything* denotes just that indifference or resistance to

surprise or wonderment in the face of the phenomena that occur around us. According to Carson (1998), "The years of early childhood are the time to prepare the soil. Once the emotions have been aroused — a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love — then we wish for knowledge about the subject of our emotional response" (p. 56). To do this, we must educate the senses to be receptive in a way that goes beyond sight and is willing to smell nature, to hear its sounds and differentiate between them. Not with classification as an end in itself, as in the case of botanists or biologists, but as done by one who loves it and enables us to discover it in greater depth.

When we look more slowly, combining sight with other senses, we see the environment in a different way, we open ourselves to the complexity of what surrounds us and we can listen to "the heartbeat of life" (Carson, 1998, p. 38). We find that a landscape is not just a landscape but a multitude of elements that form part of the ecosystem. They are not just beautiful ornaments but in many cases are crucial for its survival. Even when they are small, apparently insignificant beings, as in the case of bees, which play a vital part in conserving the environment owing to their irreplaceable role as pollinators. Knowing the names of flowers and types of trees and being able to distinguish the song of a sparrow from that of a swallow, makes it possible to learn this new way of looking and looking at oneself in the environment. It is no longer just *something that is there*, but it calls our attention, it addresses us and it makes us feel like part of the landscape. Furthermore, as Luri states (2018), the expansive character of knowledge draws us into a virtuous circle in which the more we know, the more we want to know, which explains why the expert learns more easily than the novice.

In addition to this, as in the case of human products, experiences of awe when faced with nature are especially positive for people in vulnerable situations, as they can awaken an inner joy and enthusiasm for life that gives different perspectives on everyday problems. Observing nature enables us to perceive that life follows its path, that day follows night or that after winter must come spring. In the words of Carson (1998, p. 44), "Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts."

Even though warnings have been made for over half a century and there have been significant efforts to protect it, the situation of the environment is still known to be worrying (Bautista, Murga, & Novo, 2019). Therefore, it is worth asking how much education, and specifically science education, in particular with regards to the capacity to promote awe in the face of the natural environment, might be responsible for this.

4.3. Towards a slow education

Thirdly, education in awe is not possible in a *rushed education*, which is delivered

under pressure (Schinkel, 2017). In many cases, education has been compared to gardening in that both require *respect for the necessary time* for growth and the appropriate rest so that a tiny seed can become a lush tree in the appropriate environmental conditions and with the correct nourishment. Indeed, even today, the name kindergarten, inherited from Fröbel, is used for schools for the youngest children. Nonetheless, curricula that are oversaturated with content seem to motivate a fast, hyper-constrained education in order to fit everything in and leave nothing untaught in a school setting where everything seems to be necessary and nothing stands out as more important than the rest of the content. In reaction to this trend, movements have arisen in different areas, including philosophy and education, that emphasise respect for time as an essential element in the developmental process which, as happens in many natural processes, has its own rhythm that should not be accelerated (Sánchez-Serrano, 2020).

Carl Honoré (2004), one of the precursors of this movement, states in his book *In Praise of Slowness* that we are in the era of the cult of speed, of the urgency of doing more things per minute, where we live in a rush, carried along by an accelerated culture. Nonetheless, haste makes our lives superficial. Without time we remain on the surface and are unable to maintain meaningful relationships with the world around us and with people, while slowness means "calm, careful, receptive, still, intuitive, unhurried, patient, reflective" (pp. 21-22), where quality is more important than quantity. More specifically, Nicholas Burbules (2020) recently identified slowness as a type of virtue that requires care, deliberation, and perspicacity, elements from philosophy that are vital in intellectual work. Furthermore, he notes that slowness is not the objective in itself — otherwise it could be confused with procrastination, indecision, or idleness — but it makes it possible to focus our full attention on something specific that is of value in itself, as we find in Socrates with his dialogic, incremental, unhurried method in which careful exploration of ideas is intrinsically valuable, beyond the desire to teach a broad range of content through direct and immediate responses. Indeed, cultivating intelligence and wisdom is not a task that can be done in a short space of time or in a rushed timescale. It is more like a marathon — steady, considered, and strategic — than a frenzied sprint. Similarly, awe is not possible without the chance to stop, ask oneself questions, and forget about the clock for a moment. Something that undoubtedly takes time: our time.

5. Final comments

Far from being regarded solely as a practice typical of innovative, alternative, or extravagant educationalists, awe is at the very centre of a teaching endeavour concerned with students' intellectual, emotional, and moral dimension. This article has examined this concept which is both classical and at the same time deeply current, considering approaches from philosophy and educational psychology,

pausing on the links between the capacity to feel awe and the possibilities of attaining wisdom, as well as on concepts closely linked to wisdom, such as humility, gratitude, the discovery of intrinsic value when faced with instrumentalist positions, and the calm observation of reality, away from activism. Also, some reasons for the current hostility towards awe are examined and three lines that make it possible to approach it through school are proposed. Recent academic literature has offered clues about the current challenges facing education in awe that might guide the development of future research, such as the cultivation of the educator's own capacity for awe, the identification of specific experiences of awe that can be introduced into the curriculum, the contextual and organisational condition that favour awe, and adapting experiences of awe to students' different ages and paces of maturation.

Notes

[1] The theological concept of awe, which we cannot develop here, is also very interesting, as is its connection to wisdom, humility, and gratitude. The very concept of "enthusiasm", which is close to that of awe, refers etymologically to being "inspired by a god," while in the Scriptures there are numerous references to the special place of the meek in the recognition of truth, goodness, and beauty in contrast with original sin, which derives precisely from Adam and Eve's proud aspiration to possess the wisdom of God. Ratzinger (2012), for example, closely analyses the place given to the humble shepherds at the birth of Jesus and the Magi's sense of awe inspired by the star.

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The vital Beauty. A manifesto for Beauty in the education system

La Belleza necesaria. Manifiesto a favor de la Belleza en el sistema educativo

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Abstract:

This manifesto argues for the importance of cultivating the fine arts in the education of children and their relationship with the cultivation of intelligence. Poetry, music, drawing, painting, and philosophy transmit Beauty, which is inseparably linked to reason and truth.

Teachers must know how to use knowledge to light a flame in the minds and souls of their students, and how to transmit to the them the sacred fire of culture. To keep this flame, which is the search for Beauty, burning, the fine arts are essential.

Keywords: fine arts, manifesto for beauty, education system, cultivating intelligence, truth, culture, childhood, adolescence.

Resumen:

Este Manifiesto desea convencer de la importancia de cultivar las Bellas Artes en la enseñanza, en los niños, y de su relación con el cultivo de la inteligencia. La poesía, la música, el dibujo, la pintura, la filosofía son transmisores de la Belleza, que va indisolublemente unida a la razón, a la verdad.

Un profesor tiene que saber cómo encender de conocimiento el alma y el pensamiento de sus alumnos, cómo transmitirles el fuego sagrado de la Cultura. Y para mantener encendido ese fuego, la búsqueda de la Belleza, las Bellas Artes son imprescindibles.

Descriptores: bellas artes, manifiesto por la belleza, sistema educativo, cultivo de la inteligencia, verdad, cultura, infancia, adolescencia.

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1. Introduction

I must acknowledge that when I chose to describe Beauty as necessary, I was thinking about how many other authors before me would have spoken about it. And so I innocently turned to Google: nobody, not one, not a single one! Nobody speaks about the need for Beauty.

How can we live without Beauty? For human beings, Beauty is as necessary as the air we breathe. Without Beauty, this life would not be worth living.

But is Beauty within everyone's reach? Yes, it is. In a thousand ways, but it is. From children, at home and at school. To the elderly, until as we approach a hundred, like Goya, we can say: "I am still learning".

This manifesto argues for the importance of cultivating the fine arts in the education of children and their relationship with the cultivation of intelligence. Because Beauty is inseparably linked to reason and to truth. "The splendour of truth" was how Plato defined Beauty. And, for the time being, neither reason nor Truth nor Beauty are the patrimony of the rich. They belong to everyone. Adam, who had nothing, was so captivated by the sublime Beauty of Eve, that when she offered him the apple, he ate it without objection. Not because of the apple but because of Eve, because of her Beauty.

Is it so hard to convince children and adolescents of this need for Beauty? I think not. I believe that children in particular understand the Beauty we have been given in this world. And I think that the best way is to put attractive examples before them.

2. Poetry, memory

May the soul awaken, / the mind rouse and come to life / contemplating / how life passes by, / how death comes to us, / so quietly, / how soon pleasure goes away, / how, after awakening, / it causes pain; / how, it seems to us / any time past / was better.

Coplas por la muerte de su padre.
Jorge Manrique

It is disconcerting to think about how I can still recite so precisely from memory in one go this beautiful verse by Jorge Manrique, which I learnt when I was so young.

I am sure that you will remember, like me, how hearing words that sounded so good, because what they said was poetry, had such an impression on us. Do you remember the first poem you wrote when you were children after being left captivated when you heard Manrique's verses? And the expressions of delight of your teacher and the other students when you recited it in class. And the faces of your parents and siblings when you recited it that night at home?

3. Music

Do you recall the family gathering where everyone applauded when you, still but a child, played that well-known melody on the recorder?

I still remember a piano recital by José Cubiles in Cádiz. In the summer, during

the Festivales de España, concerts were held in the Faculty of Medicine next to my house. I still recall Cubiles playing Manuel de Falla's *Nights in the gardens of Spain*. In the following days I rushed to imitate that concert by Cubiles with my puppets. I made the piano out of old black x-rays belonging to my father. It was a great success with critics and the public.

My siblings and I, well taught by our parents, took the His Master's Voice gramophone and, spellbound, played classical music. The maid, whom we loved very much, always used to say: "There go the children, playing funeral music."

Yesterday I got very excited when I asked a friend of mine about his son, who had been one of my students, and my friend answered that he had just dropped him off at his clarinet class.

4. I want to be one of them

In front of me, on my computer screen, the Hofkapelle Munich orchestra and the Tölzer Knabenchor children's choir, directed by Christian Fliegner, are performing a very beautiful version of Bach's *Saint Matthew Passion*.

One of the advantages of the computer is that I can see the faces of all of the German children who make up this marvellous choir. The children's faces as they sing are a picture. It is clear that they are completely lost in music, that they are having a wonderful time. I would like to be one of them. How I would love to be with these children singing Bach with such precision and such enthusiasm!

And when it comes to writing about fine arts in teaching and the cultivation of intelligence, my answer would, if possible, be that the readers of these lines and their children, should watch and enjoy this incredible video that can convince any child to join in with that, to want to be one of them: https://www.youtube.com/watch?v=QrrdWYh9Hwc

And the fact is that music transmits Beauty. Especially hand in hand with Bach through the children.

5. Drawing, painting

Do you remember the excitement with which you showed your mother the first drawing you did after seeing Picasso's sketches? After returning from the visit to that exhibition when we were so young, we thought that we could also do it. And we drew and took it to our mother, who else? And she showered us in kisses. And we never stopped drawing at any time in our lives.

I still remember that school visit to the Museo del Prado. And how, in front of *The Lances* by Velázquez, the teacher made us count the parallel, upright lances and the ones that were sloping. I put my hand up and said: "Twenty-five upright and four sloping!" "Exactly," said the teacher. And then a few days later, back at school, he showed some slides which, as well as the painting by Velázquez, included the *Battle of San Romano* by Paolo Ucello from the Louvre, and again he asked how many lances were upright and how many were sloping. I quickly put my hand up again

and said: "Twenty-five sloping and four upright!" "Exactly," the teacher said again. And he told us how Velázquez must have known the work from 200 years earlier, where, in contrast with Velázquez, Ucello tried to show the uproar of battle. Because Velázquez, the teacher assured us, was trying to depict the opposite, the peace and serenity of the surrender of Breda, and he managed it. This is something I will not forget as long as I live. Since then I have been a devotee of Velázquez. And it was around then that I started painting.

I have often written that to draw is to think with one's hands. Not just for an architect, as is obvious, but for everyone. At the Real Academia de Bellas Artes de San Fernando, there is just one Velázquez: his drawing of Cardinal Borja, one of the few surviving drawings by Velázquez. It is a true marvel. Because Velázquez, as well as being an exceptional painter, was extraordinarily good at drawing.

I recently donated all of my drawings — all of them! — to the library of my Escuela de Arquitectura de Madrid, and the scanned archives of all of these drawings, more than 12,000 of them, to the school of architecture and to the Real Academia de Bellas Artes de San Fernando. I am more surprised than anyone by the result.

6. Philosophy

Do you remember, as children, discovering philosophy and how with Socrates you said "I know that I know nothing"? Maybe it was when you heard Plato's proposal that Beauty was the splendour of truth. And you thought "of course!" It might seem like children would not be able to understand philosophy, but of course they can!

Cardinal Joseph Ratzinger, in a very beautiful message to the participants at a meeting in Rimini (Italy) of the Communion and Liberation ecclesial movement on the subject of "The contemplation of Beauty", said something with clear Platonic echoes:

> Whoever has perceived this beauty knows that truth, and not falsehood, is the real aspiration of the world. It is not the false that is "true", but indeed, the Truth. It is, as it were, a new trick of what is false to present itself as "truth" and to say to us: over and above me there is basically nothing, stop seeking or even loving the truth; in doing so you are on the wrong track. The icon of the crucified Christ sets us free from this deception that is so widespread today. However it imposes a condition: that we let ourselves be wounded by him, and that we believe in the Love who can risk setting aside his external beauty to proclaim, in this way, the truth of the beautiful.

And in case it was not clear, he put forth another authoritative argument:

Is there anyone who does not know Dostoyevsky's often quoted sentence: "The Beautiful will save us"? However, people usually forget that Dostoyevsky is referring here to the redeeming Beauty of Christ. We must learn to see Him. If we know Him, not only in words, but if we are struck by the arrow of His paradoxical beauty, then we will truly know

Him, and know Him not only because we have heard others speak about Him. Then we will have found the beauty of Truth, of the Truth that redeems. Nothing can bring us into close contact with the beauty of Christ Himself other than the world of beauty created by faith and light that shines out from the faces of the saints, through whom His own light becomes visible.

7. Fearlessly

When I wrote my inaugural lecture as an Academician of the Real Academia de Bellas Artes de San Fernando, I searched for a central topic, Beauty of course! And, to make an impact on the audience, I looked for a compelling term that could awaken that desire for Beauty in them. And I called my talk "Fearlessly seeking Beauty".

Because I think this is what all human beings do, more or less consciously. And in it I used a thousand arguments that I think reminded those present – they were already convinced of it – that our life has meaning within this search for happiness, which is the fearless search for Beauty. As do the lives of children.

8. Teaching: the kindling of a flame

Montaigne said: "Education is the kindling of a flame, not the filling of a vessel." And he was right. Teachers must know how to set a light in their students' souls and thoughts through knowledge. They must know how to transmit the sacred fire of culture to them. And to keep this flame, the search for Beauty, burning, fine arts are vital; they are the best fuel for this fire.

Julián Marías notes that the three qualities a teacher should have are knowledge, the ability to teach, and the desire to teach. This is very clear, much in the style of Ortega y Gasset. I recall the best teachers from my childhood and university days as being extraordinarily cultured people, who not only spoke about their specific subjects, but also about everything relating to culture. And this is what I have tried to do when it has been my turn to teach.

And for the same reason, the three qualities of students should be: knowing that they do not know, knowing how to learn, and wanting to learn. I would tell young pupils to be aware that they know nothing but that there is an easy solution to this. They must learn to learn, which means focussing all of their attention on what they are doing. And they must want to learn, which means dedicating as much time as is needed. And if drawing and music, poetry and philosophy, dance and gymnastics also appear there, all the better.

Intelligence is cultivated, like plants. And the fine arts are fertile soil for the best growth. I recall a story by Gloria Fuertes in which a child had to read in order to grow. He only grew when he read books. If this child did not just read books but also enjoyed music and drawing and poetry and philosophy and dance and gymnastics, he would grow exceedingly well.

9. Light and Beauty. The rosy fingered dawn

How could an architect speak of Beauty without speaking of light? How could a child not understand that light, the constantly moving sunlight, is one of the ingredients of Beauty?

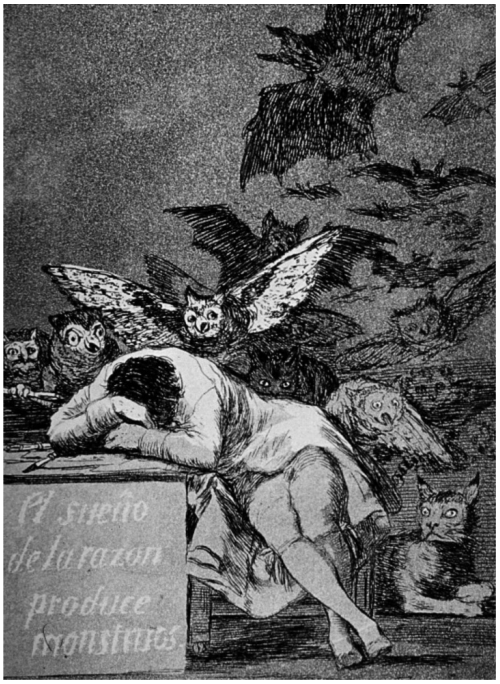
The window of my room in Madrid is large and illegal. And it has outstanding views over all of the roofs and stainless steel chimneys stretching as far as the tallest buildings of Plaza de España. It faces west and so every day at dusk it receives the rays of the sun, which warm me very pleasantly in winter and less pleasantly in summer. But, in the morning, at the right moment, all of the chimneys adorning this landscape of rooftops, almost all of which are made of shining stainless steel, are flooded with the pink light of the rising sun at dawn in Madrid. And because of the movement of the light, this wonder only lasts for a short time. For me, the fact they are touched by the *rosy-fingered Dawn* of which Homer speaks so well and so often in his *Odyssey* comes into my mind and my heart. I can assure you that it is a spectacle of great beauty. And this is why I mention it here, because the movement of the light reveals Beauty, it reflects the passage of time and it confirms my repeated affirmation that light builds time. And Beauty. From dawn to dusk.

10. Conclusion *I am still learning*

As I finish writing this text arguing for the presence of fine arts in teaching with the value that corresponds to them, I again feel that I am still learning. Something Goya expresses so well in a small engraving that featured in his most recent exhibition at the Museo del Prado: "I am still learning" he wrote on the engraving of an old man, with white hair and a white beard supporting himself on two sticks. As with this reflection full of personal memories, I have been learning again, at my age, and have learnt a lot.

Source: de Goya y Lucientes, F. J. (1825-1828). *I am still learning* [Drawing in black pencil and lithographic pencil on laid paper]. Museo del Prado, Madrid, Spain.

Of course Goya, who was very intelligent, also engraved and wrote "The sleep of reason produces monsters" and, adding: "But fantasy abandoned by reason produces impossible monsters: united with it, it is the mother of the arts and the origin of marvels." Children understand this very well.



Source: de Goya y Lucientes, F. J. (1797-1799). *The sleep of reason produces monsters* [Etching]. Museo del Prado, Madrid, Spain.

If I were a father and I had a child of the right age, the first thing I would do is make sure that he asked me to sign him up, wherever I could, for music, drawing, poetry and philosophy. He would be happy and I even more so, if that were possible. And the two of us would be freer.

11. Nota bene

Baltasar Gracián sums up very well all that I have tried to say about fine arts, culture and teaching:

> Man is born a barbarian and raises himself above the beasts through culture. Culture makes the man, more so the higher it is. Demonstrating this, Greece called the rest of the universe barbarians. Ignorance is very crude. Nothing cultivates more than knowledge.

And I would go so far as to add that nothing produces more happiness than Beauty.

Author biography

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He has lectured all over the world and has received numerous prizes. In 2014 he was made a full Academician in the Architecture Section of Spain's Real Academia de Bellas Artes de San Fernando, and an International Fellowship was conferred on him by the Royal Institute of British Architects (RIBA). In 2019 he was made an Honorary Fellow by the American Institute of Architects. In 2020 he received the Gold Medal for Architecture awarded by the CSCAE (Consejo Superior de los Colegios de Arquitectos de España).

The intelligent cultivation of moral emotions in adolescence

El cultivo inteligente de las emociones morales en la adolescencia

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Abstract:

This article examines the relationship between emotional intelligence, emotional competence, and emotional education, with special reference to moral emotions applied to secondary education. Emotional education is a continuous and permanent educational process that occurs throughout life with the objective of developing emotional competences. Emotional intelligence in education is the foundation of these competences. There is currently abundant evidence for the benefits for students of emotional education. Its most notable effects include improved ethical and moral behaviour, the development of prosocial behaviours, and improved emotional competences, resulting in improved coexistence and well-being. Emotional education can address a multitude of topics, including emotional awareness and regulation, emotional autonomy, self-esteem, self-motivation, social skills, assertiveness, empathy, life skills, well-being, etc. This work focuses on moral emotions and values as an important aspect of education in adolescence. Adolescence is a developmental stage with significant changes and instability in moods that justifies the need to develop emotional intelligence in the educational field, specifically the education of moral emotions. Therefore, this work offers practical considerations for inclusion in the secondary education stage where the figure of the teacher has a key role as a model and educational reference.

Keywords: emotional education, emotional intelligence, emotional competences, moral emotions, secondary education, moral education, values education, adolescence.

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Resumen:

En este artículo se presenta la relación entre inteligencia emocional, competencia emocional y educación emocional, con especial referencia a las emociones morales aplicadas a la educación secundaria. La educación emocional es un proceso educativo, continuo y permanente que tiene lugar a lo largo de toda la vida y su objetivo es el desarrollo de competencias emocionales. Estas competencias tienen como fundamento la inteligencia emocional en educación. En la actualidad, se dispone de abundantes evidencias de los beneficios que aporta la educación emocional en el alumnado. Entre otros efectos se destaca la mejora en el comportamiento ético y moral, el desarrollo de los comportamientos prosociales o la mejora en las competencias emocionales, lo cual repercute en la mejora de la convivencia y el bienestar. La educación emocional puede abordar multitud de temas, entre los cuales están la consciencia y regulación emocional, la autonomía emocional, la autoestima, la automotivación, las habilidades sociales, la asertividad, la empatía, las habilidades de vida, el bienestar, etc. Este trabajo se focaliza en las emociones morales y los valores como aspectos importantes de la educación en la adolescencia. La adolescencia es una etapa evolutiva de cambios importantes y de inestabilidad en los estados de ánimo que justifica la necesidad de desarrollar la inteligencia emocional en el campo educativo, concretamente, la educación de las emociones morales. Por ello, se ofrecen algunas consideraciones prácticas que pueden incluirse en la etapa de la educación secundaria en la que juega un papel clave la figura del docente como modelo y referente educativo.

Descriptores: educación emocional, inteligencia emocional, competencias emocionales, emociones morales, educación secundaria, educación moral, educación en valores, adolescencia.

1. Emotional intelligence and emotional competences

Emotional intelligence is a psychological construct that comprises the ability to control feelings and emotions, distinguish between them, and use this knowledge to guide one's own thoughts and actions (Salovey & Mayer, 1990). Over the last 30 years, various emotional intelligence models have been developed, most notably Salovey and Mayer's ability model, Daniel Goleman's competencies model, Bar-On's mixed model, Petrides's trait model, etc. A review of models has identified at least 16 (Bisquerra, Pérez-González, & García Navarro, 2015), which in practice can be arranged in two groups: emotional intelligence as a skill and emotional intelligence as a trait (Keefer, Parker, & Saklofske, 2018; Fernández Berrocal & Cabello, in press).

While the debate about the construct of emotional intelligence and its various models is still ongoing, there is generalised agreement on the desirability of developing emotional competences in all people (Saarni, 1999; Bisquerra & Pérez, 2007; Mikolajczak et al., 2009; Nelis et al., 2009; Kotsou et al., 2011) and there is discussion

regarding the advisability of using emotional competences rather than emotional intelligence (Bisquerra & Chao Rebolledo, in press).

We define emotional competences as a set of capacities, knowledges, skills, attitudes, and values that are necessary for appropriately identifying, understanding, expressing, and regulating emotional phenomena. Emotional competences include emotional conscience, emotional regulation, emotional autonomy, social competence, and life skills for well-being (Bisquerra & Mateo, 2019; Bisquerra & Pérez, 2007).

2. Emotional education

Emotional education is a continuous and permanent educational process, which occurs all through life. Its aim is the development of emotional competences that are regarded as an important part of the integral development of the personality (Bisquerra & Chao Rebolledo, in press).

Emotional education should not be confused with psychotherapy, which is a specialised process providing help for people with emotional and mental difficulties or disorders. In contrast, emotional education is a proactive and preventative group intervention relating to human development. Being proactive means that it anticipates problems in order to intervene before they arise. It is aimed at preventing problem cases rather than intervening in them like the clinical model does. It focusses on the integral development of the person through the development of emotional competences.

Keefer, Parker, and Saklofske (2018) have provided evidence for the effects of emotional education on: 1) improving social and emotional competences; 2) improving attitudes towards self, others, and school; 3) positive behaviour in class; 4) improving atmosphere in class; 5) reducing disruptive behaviour; and 6) improving academic performance. In addition, there is also a reduction in: 1) problems and conflicts; 2) behavioural problems; 3) aggression and violence; and 4) anxiety and stress. Increased satisfaction with life and improved coping resources have also been observed (López-Cassà, Pérez-Escoda, & Alegre, 2018). We believe it is important to note the effects on fostering ethical and moral behaviour based on the development of moral emotions, the development of prosocial behaviour, and the prevention of violence (Zych & Ortega-Ruiz, in press), among other aspects. Developing competence in anger control to prevent violence should be one of the main priorities of educational systems all over the world, as it is in itself a sufficient argument to justify the importance and necessity of emotional education.

One way of developing emotional competences is through emotional education programmes in the school curriculum. Programmes that have been scientifically evaluated have displayed favourable and significant results in improving students' emotional development (Keefer, Parker, & Saklofske, 2018). Pérez-Escoda and Filella (2019) offer a curriculum proposal that makes it easier for teachers to select content for developing emotional competences in secondary education. Teachers'

collaboration in the implementation of the programme is unquestionably vital. Consequently, it is important to ensure teachers are suitably trained before implementing emotional education.

3. Emotions and their moral dimension

An emotion is a complex state characterised by excitement or disturbance that predisposes people to an organised response. Emotions are usually generated in response to an external or internal event. We can classify emotions into positive (pleasant) and negative (unpleasant). This distinction depends on the valuation of the stimulus that activates the emotional response. According to Bisquerra, Pérez-González, and García (2015), negative emotions are the result of an unfavourable evaluation of the event with regards to personal objectives. Negative emotions include fear, anger, sadness, disgust, and anxiety. Positive emotions are the result of a favourable evaluation with regards to one's own objectives. Positive emotions include joy, love, and happiness. There are also ambivalent emotions, such as surprise, which are sometimes positive and sometimes negative.

Morals are a special class of emotions. Moral emotions not only help people to do moral actions, which are sometimes difficult, but they also favour the general well-being of society. Moral emotions include those relating to the suffering of others (empathy, compassion), self-conscious emotions (shame, guilt, pride), those that condemn or disapprove others (anger, indignation, contempt, disgust) and emotions that laud or commend others (appreciation, pride, moral elevation) (Etxebarria, 2020).

Emotions are essential motivators of moral action, as they are a vital condition for turning moral beliefs into the corresponding action (Cova et al., 2015). For example, compassion gives people a predisposition to helping, while guilt and regret result in a predisposition to repairing any harm that has been done.

4. The influence of emotions in adolescence

Adolescence is a stage of important changes and instability in emotional states. In this age group, there is an increase in emotional conscience and knowledge of the effect of one's affective states on how one perceives people and on performing tasks and activities. Adolescents are aware that a person can simultaneously feel different and even contrasting emotions.

With regards to comprehension of other people's emotions, adolescents display great sensitivity to personal factors and to the preferences, personality, or previous history of other people, to such an extent that it can shape their emotional response. Adolescents have more capacity to explore and collect information about other people when inferring and explaining complex emotions.

During adolescence, young people face challenges that can cause them anxiety

and stress. Examples of experiences that can overwhelm an adolescent's ability to cope include acceptance of body image, developing personal identity, achieving independence from their families, to which they are still linked, experiencing rejection and break-ups in their first romantic relationships, etc. Regarding self-concept, there is considerable research suggesting that female adolescents have lower self-concept scores than male adolescents.

In adolescence there is a tendency to hide emotions internally, ignoring and concealing the emotions caused by certain events. Empathy is positively affected by advances in emotional comprehension. Adolescents understand and accept that others have their own history and personality. They identify and interpret other people's facial expression and tone of voice in situations with an emotional load. They recognise that others have feelings and thoughts, but owing to their egotism focussed on their own concerns, they often tend not to consider other people's perspectives.

There are differences by gender, with empathy being more apparent in female adolescents than male ones. With regards to guilt, there is clear evidence that girls tend to feel this more intensely. This is also the case with prosocial behaviours where significant differences in favour of female adolescents have been observed (Calvo et al., 2001; Etxebarria et al., 2003).

In our opinion, it is important to note that emotions play an essential role in development in adolescence and so they should have a visible presence in education. Hence, an emotional education that contemplates moral emotions in the secondary education stage is important.

5. Moral education and values education in the emotional perspective

Many topics can be covered in emotional education, including emotional conscience and regulation, self-esteem, self-motivation, social skills, assertiveness, empathy, tolerance of frustration, control of impulsiveness, resilience, prosocial behaviour, preventing violence, preventing bullying, preventing substance abuse, etc. One aspect that seems especially interesting to us is education in morals and values in the perspective of emotional education.

Moral development and values education should be an essential aspect of education. The reference points for the foundations of moral education are Piaget and Kohlberg who, from a cognitive-developmental perspective, focus on moral judgement, moral reasoning, and their development through different ages. Kohlberg's contributions (1992) have been criticised by various authors who, among other aspects, question the empirical validation of the principle of universality, as it neglects the social, cultural, and gender differences, reasoning relating to justice, etc., that appear between different people (Etxebarria, 2020). The focus of study of moral education has since been broadened; one example of this is the model of four components that, as well as considering moral

reasoning, takes into account sensitivity, motivation, and moral character (Rest, Narvaez, Bebeau, & Thoma, 1999).

The rationalist and cognitive-developmental focus in moral and values education was predominant in the 20th century. Since the start of the 21st century, there has been an emotional revolution in the study of morals (Etxebarria, 2020). Faced with the dominant rationalist and cognitive-developmental positions, an interest in investigating the role of emotions in moral life and their applications to education has developed. Greene et al. (2001), Haidt (2003, 2012), and Prinz (2007) among others stand out in this emotional focus in research into morality. Prinz's work (2007) underlines how moral values are based on emotional responses infused by culture and, therefore, morals have an emotional foundation. Accordingly, this contribution helps pave a well-founded path for a moral education based on emotions.

In emotivist focusses, the object of study has moved from moral reasoning and judgement to a broader perspective that includes these aspects as well as values, emotions and moral behaviour. It is known that the expression "moral education" still has connotations that in certain contexts are regarded as repressive and so the expression "values education" is often used as its equivalent. The moral dimension and the dimension of values based on emotions are of interest in emotional education.

It is important to distinguish between values that are thought, perhaps memorised for an exam, and values that are felt. Only when people feel values such as justice, liberty, peace, love, solidarity, etc., as something that is their own with emotional engagement, will these people be coherent with their values. Values that are felt provide guidance for action. Emotional education sets out to strengthen felt values in order to increase the likelihood of behaviour in accordance with moral principles and values.

In conclusion, emotional education, moral education, and values education tend to combine. This results in an implementation that integrates both elements.

6. Practical considerations on education in moral emotions

We want to emphasise the importance of the teacher's actions as a model and point of reference for students in educational interventions. Students see what teachers do and say and tend to imitate it. The models that influence adolescents are their parents, classmates, and figures from the mass media (actors, singers, models, and others). These can influence their attitudes, beliefs, values, and behaviour. Therefore, teachers should assume the role of behavioural models: what teachers do has more impact than what they say. Similarly, they should find ways of cooperating with families to give children the best education. Furthermore, teachers should provide an educational setting where security, trust, empathy, communication, recognition, respect, and affection for the students are predominant.

The importance of empathy stands out in education in moral emotions. This is at the origin of compassion and prosocial behaviour, which involves doing things to benefit others. Empathy also causes a predisposition to consolation, defending others, inhibiting violence, the possibility of forgiveness, etc. Indignation, anger, contempt, and disgust lead to a predisposition to avoid reprehensible and morally unworthy behaviour. Inclusive education is the opposite of exclusion on grounds of ethnicity, social class, sex, language, religion, skin colour, etc. Many of these sentiments of exclusion and contempt are related to emotional experiences. Therefore, it is advisable to implement class dynamics in which young people can be helped to become more conscious of their emotions regarding different people, from which subsequent behaviour derives (contempt, exclusion, rejection, hatred). Becoming conscious puts us in a better position to regulate our emotions and adopt appropriate ethical and moral behaviour.

The experience of emotions that laud or commend, such as appreciation, pride, self-satisfaction, gratitude, moral elevation, etc., results in a predisposition towards behaviour that imitates the examples that inspire these emotions. Moral elevation is an emotion caused by witnessing virtuous acts of notable moral value. It is accompanied by appreciation, affection, and admiration for the person whose exceptional behaviour is observed. Elevation motivates those who experience it to help others; it makes people feel elevated and optimistic about humankind. Etxebarria (2020) notes the importance of stimulating elevation from the perspective of education in moral emotions. One way of doing this is to expose students to especially edifying actions, such as exemplary lives, which are presented directly through real or fictional accounts (novels), orally, in writing, or through audiovisual extracts. Examples might include excerpts from, or the whole life of, figures such as Jesus, Gandhi, Mother Teresa of Calcutta, Martin Luther King, Nelson Mandela, etc. There is an abundance of literature and films about these people that can be used as teaching material. Analysing this material "from within" is important, stimulating empathy and the emotional experience known as elevation. Exposure to morally exemplary lives and actions has the power to provoke emotional experiences of moral elevation that inspire people to want to imitate them. In other words, it activates the desire to be a better person.

According to Maxwell and Reichenbach (2005) and Etxebarria (2020), there are three processes that can be used for education in moral emotions: re-evaluation, imagination, and imitation. Re-evaluation involves doing a new evaluation of the object or situation. For example, reconsidering the behaviour of a classmate who has offended us, considering that it was not deliberate. This helps us understand that the emotion depends more on our evaluation of the event than on the event in itself.

The imagination is used to think from another perspective. For example, taking a social perspective can be encouraged by asking: How would you feel if someone did this to you? This encourages people to put

themselves in the place of the other and so develop empathy. This can be applied to stimulate a perspective that is inclusive of diversity, applying it to different people, with physical or intellectual disabilities and people of other ethnicities, languages, religions, cultures; even with adversaries and with people with whom one has had conflicts.

Stimulated imitation can be very helpful as, according to social learning theory, we learn more through what we see being done than through what people say they do. Saying what someone has to feel or do is generally of little use, and can even be counterproductive, for example: "Don't get angry", "Think about something else", "Be friendly". For young people to truly learn these lessons, the important thing is that they see it in adults, and that adults help them focus on the emotional regulation model people exercise. Students tend to react how they see people around them react. And they also tend to feel what the people who surround them feel. This is a form of emotional contagion. It underlines the importance of offering appropriate emotional models.

Ensuring that students, from a very early age, experience an appropriate moral atmosphere in which they have continuous experience of seeing models worthy of imitation involves implicit learning including internalisation of the models of behaviour that will be imitated. Explicit discussion of moral dilemmas can be an ideal complement. Discussions about values could also be held in which students and their respective families can list their own values and those they attribute to other members of their family. Discussing different values can offer opportunities for presenting a cognitive conflict and stimulating development of moral judgement.

Education about social communication media, as well as television, film, videogames, etc. is necessary. With regards to television, we feel it is opportune to appeal to the political and dominant class, who appear in the media on a daily basis, frequently offering a lamentable spectacle of moral degradation characterised by mistrust, cynicism, insults, uncontrolled aggression, partial empathy, anger, and other examples of morally negative emotions, which is seen by everyone and is the model future generations will imitate, if we do not remedy this. It is important to approach this aspect from a critical and constructive perspective so that appropriate ethical and moral behaviour can be adopted.

It is advisable to tackle these topics with a methodology that includes group dynamics, self-reflection, discussion groups, dialogic reasoning, games, etc., with the aim of contributing to an effective education in moral values.

7. Conclusions

The debate about the construct of emotional intelligence and its models is still ongoing in the field of psychological research. Beyond this debate, there is reasonably widespread agreement on the importance of emotional competences, defined as basic competences for life, that should be taught

to all people. Emotional competences are the objective of emotional education, and in emotional intelligence they have one of their foundations, along with other competences (multiple intelligences, neuroscience, positive psychology, etc.). Quality emotional education has been described as having spectacular effects. Being a little more modest, we hope to contribute to raising the teaching community's awareness of their importance and necessity. Accordingly, training in emotional education for teachers is necessary.

Adolescence is a time of major changes relating to emotional development that are linked to developmental characteristics and which influence how young people think, feel, and behave, where emotional instability is apparent, justifying the importance of and need for emotional education. Most notable among these changes are acceptance of self-identity, overcoming egotism, the need to learn to confront peer pressure, impulsiveness, low tolerance of frustration, low self-esteem, etc. This stage in life is a key moment for emotional growth and it is necessary to develop emotional competences for confronting life challenges with better chances of success and for well-being. One aspect that seems especially important to us is enhancing education in moral emotions and emotional engagement in values, as in this way it is more likely that people will adopt behaviour that is coherent with their own ethical and moral principles than when these are only seen from the cognitive dimension.

In short, this article identifies the importance of and need for emotional education in the education of secondary school students with the objective of developing basic life competences. As an example of the application of emotional education, we have referred to the moral and values dimension, among many other possible ones (emotional regulation, self-esteem, preventing violence, preventing substance use, prosociality, assertiveness, resilience, impulse control, etc.).

Emotional education when put into practice complying with the necessary requirements, has a positive effect on preventing violence and improving coexistence and well-being. We particularly note the role the teacher plays as a model and reference point for the students. The practical considerations offered can be the starting point for including education of moral emotions in secondary education.

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Is there a sexual education that is an expression of a cultivated intelligence?

¿Cabe una educación sexual que sea expresión de una inteligencia cultivada?

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Abstract:

This article aims to show how sex education today responds to the dominance that philosophies of suspicion have achieved over intellectual life, a dominance that hinders a normative judgment of human sexuality. Any attempt at regulation is suspected of concealing some kind of domination by some over others. The lack of regulations makes meaningful education about sexuality impossible and only allows for education that is superficial, instrumental, and limits itself to managing unwanted consequences such as teenage pregnancies and sexually transmitted infections. This work shows that there is another way of understanding intellectual life that is linked to moral life, open to the truth, and not just dedicated to denunciation. Thinking well involves living within a tradition and on the path of a good life. A concept of a good life supposes a teleological understanding of the human condition and the necessary cultivation of virtues in order to remain within it. In this dimension, sexuality has a meaning that is not merely biological but also relational, generative, and communicative, and it is subject to rules that derive from our personal character and sexuality's relationship with intimacy.

Keywords: sex education, thinking, affective education, moral education.

Resumen:

El presente texto pretende mostrar cómo la educación sexual en la actualidad responde al dominio que las filosofías de la sospecha han conseguido sobre la vida intelectual. Este dominio dificulta un juicio normativo sobre la sexualidad humana. Cualquier intento de normatividad es sospechoso de esconder algún tipo de dominación de unos sobre otros.

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La ausencia de normatividad imposibilita una educación de la sexualidad significativa y solo permite una educación superficial, instrumental y limitada al manejo de las consecuencias no deseadas: embarazos adolescentes, enfermedades de transmisión sexual, etc. Mostramos la existencia de otra forma de entender la vida intelectual ligada a la vida moral, abierta a la verdad y no solo dedicada a la denuncia. Pensar bien implica vivir en el seno de una tradición y en el camino de la vida buena. Una idea de vida buena supone la comprensión teleológica de la condición humana y el necesario cultivo de unas virtudes para mantenerse en ella. En esa dimensión, la sexualidad tiene un sentido no meramente biológico sino relacional, generativo y comunicativo, y está sometida a unas reglas fruto de nuestro carácter personal y de la relación que la sexualidad tiene con la intimidad.

Descriptores: educación sexual, pensamiento, educación de la afectividad, educación moral.

1. The intellectual life

In 1975, Robert Spaemann wrote an interesting work called *Is emancipation an educational goal?* The article was provocative as the concept of emancipation was in vogue at the time and still is when discussing the objectives of education. His surprising and quick answer is a resounding no, although we must now qualify it since Spaemann is certainly not proposing a pedagogy of command, nor an ideal of a subjugated human being. The enemy Spaemann confronts is a specific way of understanding thought that is ultimately based on suspicion and mistrust. How we understand human thought's relationship with education and the different dimensions of the person will depend on how we understand its function. For ideologues of emancipation, everything must start from a slow process of becoming self-aware of those aspects of ourselves that react to interests we are not the masters of and which result from a tradition. This tradition offers us meaning, a way of life, and a language with which we can explain ourselves and the reality that surrounds us to ourselves. But this language also conceals or justifies asymmetric power relationships and unequal power distributions. According to these philosophies of suspicion, it appears that human beings, even when they do not know it, are slaves as they are embedded in relationships they have not chosen and from which they do not always have the possibility of emancipation. Consequently, any interest is suspicious and it is the task of thought to uncover what is hidden from view. This way of understanding thought has also been expressed in the field of pedagogy where it is known as critical pedagogy. For critical pedagogy, the function of the type of thought we know as pedagogy is not the design of strategies for transmitting established knowledge. Instead, "critical pedagogy illuminates the relationships among knowledge, authority, and power. For instance, it raises questions regarding who has control over the conditions for the production of knowledge" (Giroux, 2013, p. 28).

Critical pedagogy involves suspicion of any asymmetric relationship based on authority or tradition. Its objective is what is known as *radical democracy*. This democracy is the outcome of a prior pedagogical undertaking that deconstructs any ideology that shapes us, since "ideologies are not just a constellation of ideas, stereotypes, and modes of common sense; they also represent specific forms of knowledge and beliefs rooted in strong emotional investments. Such attachments need to be understood, analysed, and deconstructed, often not simply as a form of uncomprehending knowledge but as an active refusal to know and the refusal 'to acknowledge one's own implication' with such attachments" (Giroux, 2013, p. 35). Therefore, any ideology produces within itself some type of oppression against anyone who does not want to or cannot submit to its categories and to the norms these bring with them.

The role of thought is therefore to reveal, or rather denounce, because behind meaning there is always a hidden interest. This way of directing the cultivation of intelligence is clearly insufficient, even though it might seem attractive, as it would derive from the recognition that what is of value in thought lies in its capacity for revealing/expose errors, abuse, or lies rather than in revealing/exposing what is of value, "interesting", good, or true.

The rationale of this way of understanding thought, and consequently the value of the intellectual life, rests on two errors. The first is a certain misunderstanding of the limited character of human life and thought. In the face of this limitation, the allure of novelty offers an escape from the boredom or weariness that so often affects the everyday. In effect, thinking is not just the logical concatenation of ideas and arguments, but instead involves entering into a tradition with specific practices and certain demands that also affect the way of life and habits that keep us in it. Thought, therefore, has a relationship with this second nature, which we call moral life, and not just with logic. This second nature is laboriously built and is always supported by a meaningful language whose veracity cannot be discovered if we do live in it.

This is the sense of the critique that, for example, MacIntyre (1999) makes of Richard Rorty's concept of critical education. For Rorty, developed thought, critical thought, is thought that is capable of irony once it has been socialised in a way of seeing reality. To be fair, it is admittedly necessary to recognise that, According to Rorty, there is no possibility of thinking critically without first acquiring a certain type of language and comprehension of the world, something he links to socialisation (Rorty, 1989). But for Rorty, what is characteristic of the human being is the possibility of casting doubt on this ultimate thought, creatively ironising with it, with all of the consequences this entails.

When facing this dominant way of understanding intellectual life, authors such as MacIntyre offer alternatives. Essentially the human being is a profoundly

dependent being whose *telos* is to manage to become independent, or have independent thought, or its own critical thought. For MacIntyre, what is unusual about this journey to independence is that it can only be done from dependency. This might seem to match with the need for socialisation in Rorty, but they are not the same. For MacIntyre, dependence is a precondition for the possibility of independent thought, which he calls "independent practical reasoning". We can become independent thanks to others, not despite them. This has an important implication; suspicion when confronting received ideas is not the objective of human life and is not even something essentially desirable. MacIntyre (1999) states that we must have very good reasons to oppose those who love us and have taught us to be who we are. And while doing this is sometimes necessary, and learning this difficult lesson is an important part of education, it is always necessary to have very good reasons when doing it.

MacIntyre underlines the importance of intellectual training within a tradition, the idea that we always learn what we are thanks to others, and the idea that tradition is something qualitatively different to socialisation. He chooses to explore what he calls virtues of dependence, the type of attitudes that enable a better social life. Truthfulness stands out among the necessary virtues. Here it is important to recall that for Rorty any discourse on truthfulness is an inconvenience while for MacIntyre it is fundamental, not just for thought, understood as pure cognition, but also for the formation of moral judgement.

For MacIntyre there are three attitudes that harm the necessary virtue of truthfulness: "A first type of offense against truthfulness then consists in unjustly preventing others from learning what they need to learn, and a second type consist in concealing from view the nature of our relationships to those others" (MacIntyre, 1999, p. 151). The third aggression MacIntyre discusses is precisely Rorty's irony, which he identifies with the sophistical attitude that is unable to commit to a final vocabulary. Why? Firstly, because a final vocabulary is not a sort of superficial socialisation of customs that enables us to appear before others and be recognised, but rather also a vocabulary that commits us, explains us, enables us to understand the human world, and allows it to function. How would a society work if we could not really trust one another, or if we did not believe that, at least to a large extent, we understand the same thing about what is just, good, and true? How could we even shop in the supermarket without trusting in the truthfulness of what we are told? Should we mistrust someone who sells us a litre of milk when they say they are selling a litre of milk? Why attend class and believe our teachers if we do not think that what they tell us is essentially true? For MacIntyre, ironic detachment is a form of cynicism that would make social life unliveable. If ironic detachment is genuine and not just a pose, if it truly questions the foundations on which we have been socialised, we would be at the mercy of the strongest, the most powerful, those who have the most resources for imposing their agenda.

For MacIntyre, criticism is not always necessary or of value for advancing in knowledge. MacIntyre criticises the idea of placing the foundations of the intellectual life in the field of mistrust and doubt. His essential argument relates to progress through virtue. For example: if we ask ourselves why we would not betray a friend if it benefits us, this means that we are still at a very basic level of comprehension of what friendship means. A person who progresses in the cultivation of this virtue will reach a point where he can no longer ask himself this question, and this inability is an achievement that gives a better and more perfect thought and situates him before the possibility of having better judgement with regards to the practice of friendship.

In summary, the cultivated intellectual life is not that which is born from mistrust or questioning, because questioning our interests, their history and genealogy is insufficient and is not even useful. We must have interests and these interests are achieved in another way. A fully human life is a life with interests (Spaemann, 2003). The true intellectual life is one that is born from insight and improvement in the search for truly valuable goods or practices, and this thought requires practice and full immersion in a particular type of life, whether it be scientific, philosophical, humanist, or religious. Thinking well involves living in a certain way and not just reasoning in a given way. From this perspective, we can understand that phenomena such as communion, have the same sense and the same mentality, they are the consequence of a given intellectual life marked by experience of shared knowledge that is the fruit of a same tradition. Knowledge

> *per connaturalitatem*, as a man recognizes his beloved or what is his own. The stranger does not understand, or misunderstands, but one who is allied with another in love and congeniality knows immediately, and with absolute certainty, what is meant in a fragment of a letter or a dimly heard call. (Pieper, 2011)

This idea leads us to the second error of suspicious thought. Models derived from suspicion paradoxically result in the exaltation of the apparently creative or original and of identity and sentimentality. Identitarian postmodernism is the inevitable child of rationalist modernity which is the mother of the philosophies of suspicion.

As we have just seen, modernity, the origin of the critical thinking being discussed here, tried to break its bonds with tradition and with a way of thinking that derives from a profound teleological view of the human being. This break has been a tough blow for the formation of thought, which now has no criteria other than its own originality and its capacity for seduction. The validity of thought now lies in the creativity it displays or in its capacity to entertain or dazzle, not in its power to unravel human nature. It is in this very ordinary sense that, for example, adolescents are captivated by fashionable series that offer channels for desire behind an attractive façade while at the same concealing important aspects of human nature.

If all that remains is suspicion, we can only turn to the experience of our own desire, which, without reliable criteria for judgment or reference, is the only thing that appears to be truly real. What do I do with my desire, which feels like an ache constantly demanding my attention? In the absence of other substantive criteria, all that remains is to prioritise this desire fully, and as long as it does not affect others, this seems to be the most rational course. Consequently, the intellectual life is a life that accompanies or finds reasons to justify or legitimise this desire.

2. The formation of human sexuality and tradition

There is a strong relationship between the intellectual life that stems from philosophies of suspicion and the current conception of sexuality and its formation. Education, in the contemporary world, as described above, only concerns itself with the most negative consequences of sexuality: teenage pregnancy, sexually transmitted infections, consideration of different sexual identities and orientations, or the patriarchy, which refers to the supposed unequal distribution of power between men and women. In any case, we can study sexuality so long as we do not enter into the question of proper or improper behaviour, terminology of which we should be suspicious. But talking about sexuality at school has never been simple, here or anywhere. This is because the debate about what school can or should say about this matter is marked by deep-rooted and rival anthropological conceptions (Irvine, 2004).

For example, contrasting the two most classical currents of sex education in the United States, "Abstinence Only" and "Comprehensive Sex Education", reveals very different conceptions of value and morality. For the former, full sexual relations outside of wedlock are immoral *per se*, and information about ways of avoiding pregnancy can be counterproductive as it encourages adolescents to do sexual activities for which they are not psychologically ready, which are morally reprehensible, and which by their very nature can lead to everything their opponents also want to avoid, sexually transmitted infections and teenage pregnancies, with the consequent fall into poverty, marginalisation, etc.

In contrast, the supporters of what Americans call comprehensive sex education maintain that it is not true that information about different methods of contraception encourages earlier sexual activity. They also argue that there is a right to information about sex and to education in the practices that permit "safe sex". Their ultimate reasoning is that we live in a plural society and we do not all share the same fundamental anthropological concepts, so what we have to solve is not a moral problem as such — although for some people it is — but a public health issue on which we all agree (Fine, 1988; Fine & McClelland, 2006; Collins et al., 2002; Santelli et al., 2017). Within this current there is another series of studies that set out to go beyond the perspective centred on adolescent sex as a risk activity to focus on a positive consideration, according to them, of adolescent

sexuality, emphasising its importance as an individualising force and a space for confronting dominant models in relationships between men and women (Tolman, 2012; Tolman, & McClelland, 2011; Harden, 2014). But however positively they regard their approach, their analysis is supported on a sociological, or at most psychological, dimension of the phenomenon of human sexuality. They never enter into the anthropological dimension or the dimension of meaning.

The problem with these two methods is that both encounter the same obstacle, which is essentially intellectual and which we could call "puritanism" or simplicity. The term "puritanism" here has the same sense Roger Scruton gives it: for him, puritanism is a form of laziness that when faced with a complex problem attempts to overcome it by the easiest route (Scruton, 2009, p. 139). As education in affection, of which education about sexual desire is a part, is a complex matter that requires diligent and sustained work, yet people apply the easy solution of pure negation of desire or treat the most disagreeable and inconvenient aspects of its expression. Those who argue for the route of the simple option of abstinence are lazy if they focus on this point alone, as they set out to solve a problem without helping to cultivate the virtues that are necessary to channel affection, nor do they show the beauty of achieving it. The actual results thus seem to be ineffective (Santelli et al., 2017).

On the other hand, those who set out to resolve the matter of sex education simply through technical control of unwanted consequences, through information about condoms and "safe practices", also display laziness, as they voluntarily eschew entering into the meaning of sexual desire for the human being and so they break any type of bond with the meanings sexuality has traditionally had. Their proposal is also lazy in that it leaves adolescents without reference points for understanding their desire and how to confront it.

Both move among the remains of an understanding in a world where the link between sexuality, stability, love, and reproduction has been broken. A world where easy access to contraceptive methods, and a complete availability of sex online prevail.

To deal with the subject of human sexuality and how cultivating the intellectual life can help with its formation, it is necessary to understand that there is a way of approaching this dimension of the person that does not derive from the pedagogy of suspicion, nor from acknowledgement of the existence of a desire that there is no reason to repress so long as it is done with sole limit of not causing harm to others. Instead it derives from the capacity to learn attentively from history and experience while seeking the meaning of our affective sexual reality. What can we learn from this observation?

Firstly, sexuality is an important dimension that must be approached without the purely defensive and fearful attitude with which it has perhaps been approached educationally in other periods,

but also without trivialising it. Sexuality is an important part of processes of individualisation and human growth and is, in a way, sacred for humans since it combines two dimensions: intimacy and the creation of new life.

That sexuality is related to intimacy is evident just from observing reactions to sexual violence. This inspires greater revulsion than other types of violence because people see sexual violence as an attack on intimacy that profoundly affects those who are subjected to it. Without this relationship between sexuality and intimacy it would be difficult to explain why a simple look can cause more backlash than a fight over a sporting contest in a school playground. Moreover, the relationship between sexuality and reproduction is evident, even if people try to deny it. No matter how much people talk of safe sex nowadays as a practice that cannot lead to pregnancy, it remains true that we all come from a sexual relationship. The constant regulation of sexuality that different cultures have exercised originates in this connection between intimacy and reproduction. This "sanctity" of human sexuality is apparent in the mass of norms and rituals that have historically regulated its functioning. No bodily function is more subjected to institutionalisation than sexuality. As Spaemann says, this essential character of human sexuality, that distinguishes it from other ways of satisfying needs, "is subjected to certain rules of humanisation and has the privilege that derives from its institutionalisation" (Spaemann, 2017, p. 29). Institutionalisation is the human way of marking practices that are socially important.

However, we cannot ignore the fact that in the last half century there has been an intensive and constant process of privatisation or deinstitutionalisation of sex, running in parallel with an ongoing separation of sexuality and reproduction. This separation or break has increased thanks to birth control methods and the revolution that these have entailed for human life (Choza, 2020, p. 138-141). For Choza, this break between sex and reproduction liberates sex, which no longer has negative social consequences so long as the will of the other is respected. Consequently, for him the old moral architecture built around the connection between sex and reproduction now lacks meaning and is hard to transmit. He understands that on the whole there is a gain in this process (Choza, 2020, p.273-276).

Choza anticipates, perhaps prematurely, that the break between reproduction and sexuality will not have effects on intimacy. However, this anticipation might not be true, as the internet and other current social phenomena are starting to show us[1].

In a recent essay, Mary Eberstadt (2019) claims that the problems resulting from the rise of identity politics, and which have led to a great degree of polarisation and violent outbursts, including within academic institutions, have their ultimate roots in the global sexual revolution and the rupture this has involved for the family. Her essay refers to Alan Bloom's famous book

The closing of the American mind (2008). In this book, Bloom complains about the relativistic path higher education is following. One of the causes Bloom identified for this relativistic trend relates to the increase in divorce and destruction of the family. But what relationship might there be between changes in family structure, new romantic relationships, the sexual revolution, and identity politics? For Eberstadt, the connecting link is the following. Firstly, the question about identity — who am I? — is a universal question that was traditionally answered on the basis of the culture and organic relationships in which people were raised; parents, grandparents, siblings, and cousins located us in coordinates in which we could recognise ourselves and form a stable identity. The breakdown of these relationships has had effects on the construction of the subject's identity. For example, analysing the survey by Elisabeth Marquardt and Norval Glenn, we find that children of divorced parents were three times as likely to agree with the phrase, "I felt like a different person with each of my parents, even when I was a little kid" (Eberstadt, 2019, p.25). This identity crisis is the source of a fearful generation that seeks certainty in the construction of new identities that are imposed reactively. According to this same essay, for example, the cause of the rise of an aggressive feminism:

> is instead an ultimately self-defeating but profoundly felt protective reaction to an environment of heightened risk. In a world where laissez-faire sex has made male companionship more peripatetic than before, some women will take on the protective coloration of male characteristics-blustering, cursing, belligerence, defiance, and also, as needed, promiscuity, or at least shout-outs thereto. (Eberstadt, 2019, p.56)

Secondly, and relating to the above, there is a connection between moral life and sexuality that is not present with other human needs since this dimension brings into play various people and does so intimately. To approach this phenomenon from the coordinates of our time, we must first consider explanations from evolutionary psychology (Wilson, 2000; Barkow, Jerome, Cosmides, & Tooby, 1992) because for many people, evolutionary psychology has taken the question of morality out of the hands of philosophers and given it to biology (Haidt, 2013), and an area of human reality should not be abandoned so easily.

These authors understand the moral dimension from evolutionary categories. In this setting, the different systems for regulating the sexual behaviour of men and women have worked most efficiently when guaranteeing reproduction in contexts that have now disappeared, but precisely because these contexts have changed, these rules are now dysfunctional (Earp & Savulescu, 2020).

Triumphant moral systems are how they are because they offer adaptive advantages, and not for any metaphysical reason linked to essential conceptions of human nature. According to this type of explanation, as raising children demands energy and the commitment of the father, moral norms appear that benefit behaviours that are connected to faithfulness

and monogamy (Brandon, 2016). The evolutionary explanation subordinates everything to the mechanism of natural selection and adaptation to the environment. In fact, this sort of social Darwinism is not always so crude and it does not set out to explain specific behaviours in this way, but it does set out to do so with fundamental psychological dimensions, which are those that support the different moral codes, and which are the outcome of evolutionary mechanisms (Symons, 1989).

In the first place, the problem with this type of reading of moral life is that it is of little use in the world of education, either because it does not propose any criteria for deciding which moral code is most appropriate to transmit, limiting itself to a pure or primarily descriptive field, or because it simplifies human life excessively by turning moral debates or dilemmas into mere linguistic games that are incapable of understanding the whole. The moral psychologist can analyse human behaviour with a perspective that is not qualitatively different from that of an ethologist who empirically analyses different behaviour in any social animal. On the same lines we can include studies that, following these materialist paradigms, set out to offer educational intervention models or windows of opportunity for intervention based on psycho-biological study of adolescent development (Susman, Marceau, Dockray, & Ram, 2019; Immordino-Yang, Darling-Hammond, & Krone, 2019). Nonetheless, the explanations they provide will always be incomplete because they neglect the radical and qualitatively distinct dimension of the personal structure of the human being.

For example, the human being, like other species that use sexual reproduction, is subject to the process of pairing, but the terms we connect to this process in the human sphere such as faithfulness, for example, cannot be understood or studied in the biological dimension. As Yela observes, "the radical difference between animal behaviour and human behaviour is that the former is always a relationship between the animal and its environment, while the latter is a relationship between the human being and its world" (Yela, 1996, p. 156). The world is a reality to which we must respond meaningfully, a reality we access through meaningful language and in a search for meaning. Modern evolutionary psychology is not capable of understanding this dimension because it does not enter into its schemes, but it is vital for educators, because it forms part of their area of intervention. Scruton provides an interesting and stimulating analysis of the problem evolutionary science encounters when understanding human nature in depth by studying the phenomenon of laughter (Scruton, 2019).

This world of meaning is the sphere where sexual morals and education move, as it is in it that we take charge of this dimension. This is why the language we use to explain sexual realities is so important. Nonetheless, philosophies of suspicion have destroyed any type of effort to give a profound meaning to a language that intends to establish some type of set of norms in this area. Despite this, it is

necessary to approach this sexual dimension with the understanding that it forms part of the affective dimension of the human being, and to do so through a language that helps understand the tendencies that underlie desires, that shape them and direct them to their own ends in a dimension that is not purely biochemical but instead personal.

However, the dominance of a merely deontological morality often omits those aspects that do not relate to agreement between parties. This is insufficient for an education that aims to help in the search for meaning, in the process of taking charge of the world including the affective world. A deontological ethics is insufficient in this dimension and so a substantive ethics is needed. But what is a substantive ethics? A substantive ethics is that sort which takes into account the fact that as human beings we configure ourselves as people who interpret ourselves, who need a framework of reference to explain who we are and how we can achieve a good life.

Configuring oneself as a personal being involves understanding oneself as a subject that is conscious, has aims and intentions, and cannot be reduced to its biological properties, "I would suggest that we understand the person as an emergent entity, rooted in the human being but belonging to another order of explanation than that explored by biology" (Scruton, 2019, p. 30). But situating ourselves in an order of explanation other than biology does not mean separating ourselves from the biological. We are people who are incarnated in sexed bodies; we do not simply have these properties as something from which we can free ourselves until we become pure spirits. This is the basis of Scruton's criticism of what he calls Kantian feminism, which does not take seriously the essential character of our sexed corporeality. We cannot construct our sexuality as though the body were something other than what we are in a disembodied dualism (Scruton, 2006). Our corporeality has demands at the biological level and also has demands in the dimension of our personal being.

From the subjective point of view, the first of these demands revolves around the need to understand that sexual pleasure is not merely an inherently meaningful physiological response. The personal sphere of sexuality is subject to the rules of relations between people and demands an openness to the other as something other than a mere object for our enjoyment. Pleasure in a human sexuality is not pleasure in the other but pleasure with the other (Scruton, 2019). This openness to the other leads us to recognise the especially repugnant form of violence involved in sexual abuse. A type of violence that involves treating as an object someone who is a subject. When society loses its repulsion at sexual abuse, in a certain way, it loses the conscience of the personal being.

Understanding human sexuality also involves accepting that it is not just our rationality that opens us to others, but that our corporeality is also relational. This relational dimension is subjected to a normativity that cooperates in our creativity and does not cancel it. When facing the

denunciations of the philosophy of suspicion we need to understand the value of moral norms as forms of liberation in this field as well (Reyero, Gil Cantero, 2019). Here is an example: Educated in the language of suspicion there is a current and growing rejection of stable and lasting commitments and the practices that institutionalise what is supposedly the freedom of feeling (Carter & Duncan, 2017), but the alternative analysis we assert will perhaps help us to understand that it is precisely the opposite. Chesterton explains this very well. It is not that the institutionalisation of human relationships such as marriage is merely a violent social imposition to control a blind impulse without meaning, but rather this bond is also the expression of a profound search for eternity and permanence in the relationship that beats in the human heart. Chesterton says:

> It is not the fact that every young love is born free of traditions about binding and promising, about bonds and signatures and seals. On the contrary, lovers wallow in the wildest pedantry and precision about these matters. They do the craziest things to make their love legal and irrevocable. They tattoo each other with promises; they cut into rocks and oaks with their names and vows; … The startling but quite solid fact is that young people are especially fierce in making fetters and final ties at the very moment when they think them unnecessary. The time when they want the vow is exactly the time when they do not need it. That is worth thinking about. (Chesterton, 2005, p. 177)

It seems clear that desire and the impulse that makes it possible to link sexuality to love generates strong bonds that go beyond satisfying sexual appetites, since bonds can be strengthened when the appetite is extinguished like in the case of hunger after eating. We understand that this is so because human sexuality cannot be separated from a special type of communication and, in this case, communication links us to the other in a way that makes us grow in a relationship of mutual assistance, and recognise ourselves in the eyes of the other (Scruton, 2006).

Finally, although sexuality is a relational dimension that is open to the other and a form of communication that involves intimacy, not all types of sexual relationships have the same demands. Scruton claims that heterosexual relationships are more demanding in this sense and also, precisely because of the meaning of this difficulty, they are complementary since they are directed "towards an individual whose gender confines him within another world" (Scruton, 2006 p. 283)[2]. Hadjadj, speaking on the same lines about his wife, states:

> The closer we live, the more each of us discovers our own essential solitude and the irrepressible alterity of the other. Siffreine is never as united to me as when I recognise that she escapes from me fully. Communion involves enduring in that distance from intimacy, in the proximity of the mystery. (Hadjadj, 2010, p. 177)

But, in addition, the connection between sexuality and the creation of new life also places heterosexual relationships on another moral plane. In sexual relations between man and woman, there is

a mysterious link with a third being that does not yet exist, and perhaps is not hoped for, but which is a possibility. "By uniting their flesh they form a single flesh different from themselves" (Hadjadj, 2010, p. 178). The possibility of parenthood is a sign of the type of responsibility and maturity that sexuality demands.

3. Conclusion

This article ends with some reflections that act as a summary.

1. It is impossible to educate in sexuality without entering into an intellectual life that is open to the search for truth and meaning. This openness entails entering into a language that does not settle for scientific-technical rationality to explain human sexuality and also does not base itself on suspicion of any language that engages with teleological explanations of the human being. Only a language with a certain anthropological density can offer educational pathways that allow us to discern which desires are appropriate and which are not, which practices do our nature justice and which degrade it.

2. As sex is an activity between people, it is subject to a specific set of norms, the exigency of which derives from the intimate character that is at stake. Education in sexuality must relate to care for others.

3. If, as we have shown, intimacy is in play when we speak of sexuality, there would be no harm in recovering old terms such as shame, devotion, passion, lust, or concupiscence that enable us, on the one hand, to understand the beauty it contains and on the other the emotions that are mobilised and the risks of a personal rather than health nature that are at stake.

Notes

[1] It seems likely that the author did not always think the same way in relation to the sexual revolution of our time. In an interesting original text from 1971, Jacinto Choza analyses the suppression of shame in the field of sexuality as a property of our time, and as a manifestation of the suppression of intimacy (Choza, 1990). He was not then conscious of the degree to which this break might have been heightened or caused by the sexual revolution. Nonetheless, the way current adolescents expose themselves in social media and the "transparent" and overexposed world we are creating question the idea that the consequences for intimacy of this revolution are always so positive. It should be noted here that Choza gives shame a definition that is positive and even necessary for understanding intimacy and personal life itself: "Shame is the habit and tendency to maintain possession of one's own intimacy from the most radical instance of the person (the ego), and to maintain this intimacy in the state of the greatest possible perfection, in pursuit of a self-giving through which solitude is transcended and the subject perfects itself" (Choza, 1990, p. 28).

[2] Roger Scruton and Martha Nussbaum had an interesting discussion about this point. A summarised version can be found in Reyero (2020).

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Teaching Christianity and cultivating intelligence

Enseñanza del cristianismo y cultivo de la inteligencia

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Abstract:

From its very beginnings, the teaching of Christianity has been characterised by its cultivation of intelligence. This task is still fundamental, especially as education does not always succeed in harmonising the intellectual dimension with other dimensions (especially the emotional or affective and social dimensions), which often come to the fore. However, it is necessary to demand that the educational task refers to reason theoretically and in practice, and here this is presented as an objective. Within this framework, this work considers that Christian education provides the light of faith, faith which enters into relationship with reason and, therefore, with culture or cultures. This is presented, in religious education classes in a dialogue between ethics, science and religion, with a view to the interdisciplinary nature of education. The teaching of Christianity has its scientific roots in theology, on the level of both speculation and practical wisdom. In conclusion, religious education classes, with their humanising and educational potential and their proclamation of faith, can enrich reason and the works of humankind. All of this is especially relevant when illuminating the intellectual approaches and existential attitudes of young people.

Keywords: faith, reason, culture, ethics, science, religion, morality.

Resumen:

La enseñanza del cristianismo se ha caracterizado, desde los primeros tiempos, por su cultivo de la inteligencia. En la situación actual, esta tarea sigue siendo fundamental, máxime teniendo en cuenta que la educación no siempre consigue armonizar la dimensión intelectual con otras dimensiones (especialmente la emocional o afectiva y la social), que con frecuencia se ponen en primer plano. Sin embargo, es necesario, y aquí se presenta como objetivo, reivindicar teórica y prácticamente la referencia de la tarea educativa a la razón. En

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ese marco, el texto tiene en cuenta que la educación cristiana aporta la luz de la fe, fe que entra en relación con la razón y, por tanto, con la cultura o las culturas. Esto se presenta, en el aula de religión, en diálogo entre ética, ciencias y religión, en orden a la interdisciplinariedad de la educación. La enseñanza del cristianismo tiene su raíz científica en la teología, tanto a nivel especulativo como de sabiduría práctica. En conclusión, la clase de religión, con su potencial humanizador y educativo y al mismo tiempo su componente de anuncio de la fe, se ofrece para el enriquecimiento de la razón y del obrar de las personas. Todo ello tiene particular relevancia a la hora de iluminar los planteamientos de fondo y las actitudes existenciales de los jóvenes.

Descriptores: fe, razón, cultura, ética, ciencias, religión, moral.

1. Introduction

Christianity is not a book, nor is it a set of rites, or respect for moral rules. Teaching Christianity provides a deep and imaginative education in how to love and follow Christ today. The Son of God told us he was the way, the truth, and the life. What do these words mean? How do we offer students an outlook for their own existence that shapes our identity in a unifying project?

Perhaps nowadays in the world of post-truth and fake news, it is especially important to return to Saint Paul, who did not live with Christ or enjoy the experience of the Sermon on the Mount, but did have him as an inner teacher and was the great promotor of the early church. Saint Paul urges the Christians of Rome to transform themselves, as a consequence of the "new life" received through baptism, with a "renewal of your mind," to "prove what is the will of God, what is good and acceptable and perfect" (Rom. 12:2).

This, according to another text by the apostle, means that Christians are called upon to share in the mind of Christ; what is more, they already have the beginnings of this mind (see 1 Cor. 2:16) with its potential to develop, since they belong mystically to his body and the Holy Spirit acts in them. The action of the Holy Spirit transcends the rational — without denying it — "because there is a depth and a series of openings which reason cannot reach on its own" (Congar, 2003, p. 54).

The Greek term *nous*, translated as mind, means inner aptitude or orientation, moral attitude. (Elsewhere Saint Paul uses it in the sense of *practical reason*, in other words the moral conscience that shapes will and action, or with the more general sense of the faculty of understanding or judgement.) Referring specifically to Christ, it is used with the meaning of his salvific resolution, his plans, or his judgements.

If we ask ourselves about the consequences of all of this for education in the area of Christianity, we might find that education in this "mind" of Christ entails

educating from and for the relationship between faith and reason, between faith and culture. Nowadays, this requires an ever more systematic interdisciplinary working structure in educational institutions, especially ones with a Catholic or other Christian inspiration. At the same time, this task requires careful attention to theological or scientific-doctrinal training; in other words, training minds or "Christian heads" with due respect for the liberty of all. Furthermore, all of this entails educating for a "lived faith", laying the practical and pedagogical foundations for moral behaviour in such a way that intelligence and the heart go together and are always ready to seek truth and good with the beauty that shines and emanates from the very actions of Christian men and women (García Suárez, 1998).

2. Faith and reason, faith and culture

Starting from the relationship between faith and reason, both of which originate in God, it is important to outline the relationship between faith and culture. This is especially interesting in the educational setting when considering the relationships between certain areas of knowledge, including practical knowledge, such as ethics and sciences, with religion.

2.1. Faith and reason: premises

We will start with the relationship between *faith and reason*. And first of all, with faith. By *faith* we do not mean an intellectual theory or a mere set of beliefs, rites, and moral rules, but rather a life that, in Christianity, proceeds from the encounter and relationship with Christ. However, as we noted at the start of this piece, life in union with Christ involves transforming intelligence, renewing it, and making harmonious use of it integrated with the other dimensions of the person: the volitional-affective, the relational-social, and the transcendent. Christianity maintains that this last dimension is based on the image of God that forms every person, in their unity and uniqueness, as their deepest inner project. This project, that of the human being, is seen in, from, and for Christ. The importance for education of considering that "what is most characteristic of man, what most defines him …, is his *filial character*" can be understood (Polo, 2006, pp. 43-44).

Faith is, therefore, a light made life, which proceeds from a gift of love to which people respond in the dynamic of their existence. A response that affects their way of thinking, decisions, actions, and commitments. Consequently, while faith as such cannot be taught, it can and must be taught in its truthful "content" and taught as a free response that makes people as individuals grow towards the plenitude characteristic of the love that comprises it.

Theological tradition names the fundamental dimensions of faith as *fides qua* (faith as a gift) and *fides quae* (as a set of *truths* or objective realities that come with faith). Less common, although equally fundamental, is the type that can be expressed as *fides quae per caritatem vivit et operatur* (faith lived through love, or faith in the full and proper sense of the coherent Christian).

"Faith is our response to a word which engages us personally, to a 'Thou' who calls us by name" (Encyclical *Lumen fidei*, 2013, n. 8). Faith "sees things as Jesus himself sees them, with his own eyes" (Ibid., 18). Faith is not individualistic: it is lived in a people, in a family: the Church; given that the Church "is the bearer within history of the plenary gaze of Christ on the world" (Guardini, 1963, p. 24).

Faith is linked to the love that saves and transforms. Faith has consequences for intelligence, for behaviour, for social commitment. Faith works through love and makes people walk in hope.

Faith must, therefore, be lived — as a door that opens up to the inner life of God, that participates in his own knowledge and makes it possible to collaborate in the development of a new humanity and a new world, to know it — in its content as the Catechism of the Catholic Church presents it — and to share it — above all with testimony, participating joyfully in evangelisation. And all of this is, obviously, done freely, as an offer to humankind of a better, greater, and fuller life. An offer that enriches and distinguishes any education, without diminishing any of its aspirations or achievements.

In this comprehension of faith, types of "faith" that do not establish a relationship with reason or culture can be discerned. They could be summarised in the varieties of a faith that is not sufficiently embraced, thought, or lived. "A faith that does not become culture is not fully accepted, not entirely thought out, not faithfully lived" (John Paul II, 1982).

So, immature faith (voluntarist, sentimental, rationalist), fideist faith (incapable of arguing through reason), and purely theoretical faith (non-lived), would not serve our educational aims for different reasons in each case. Christian faith illuminates intelligence at the same time as strengthening the will and merging feelings and relationships between people. Faith illuminates in order to comprehend and live the reality of a new life. And it drives constant investigation and discovery of new aspects of the truth.

Let us now consider reason. By *reason*, as in everyday language, we mean the human faculty to consider, which is an aspect of intelligence. It should be noted that human reason, if it is to be considered as such, must be open to all of the reality that comprises us and surrounds us, and be capable of valuing it in relation to the person in its entirety: not just its intelligence, but also its desires and affections, its social dimension, and its openness to transcendence.

Consequently, for reason to be connected to faith, it would not be enough, according to the observations of Josef Pieper (2010), a reason that is *not realist* but instead is close to idealism would not be enough; nor would a reason that is narrowly *rationalist* (isolated by itself with regards to the human heart, relations with others, and transcendence); nor would an *enlightened* reason (one shut off from any spiritual horizon and

incapable of recognising, for example, the roots of evil in the world); nor would a *spiritualist* reason (one that rejects the value of the material, the human body, or the realities we call temporal: work, the family, technological development, ordinary life, etc.).

Joseph Ratzinger's thinking on the need for expansion of *human reason*, something especially apparent today, is of interest in this regard. Specifically in his address on the conferral of the first "Ratzinger Prize", Benedict XVI (2011) mentioned Saint Bonaventure (in the prologue to his *Commentary on the Sentences*) where he speaks of a dual use of reason, one use that is irreconcilable with faith and another that is in accordance with the nature of faith. When experimental reason sets out to subject God himself to experimentation (see Psalm 95, 9), it exceeds its competences, in that, being useful in the field of the natural sciences, it is not ideal for knowing that which is not the object of human experimentation. And this approach reached the high point of its development in the modern age:

> Experimental reason largely appears today as the sole form of rationality that is declared scientific. What cannot be scientifically proven or disproven falls outside the scientific sphere. Within this framework great works have been achieved as we know; that this is right and necessary in the context of the knowledge of nature and of its laws no one would seriously question. Yet there is a limit to such a use of reason: God is not an object for human experimentation. He is the Subject and manifests himself solely in the relationship of person to person: this is part of the person's essence. (Benedict XVI, 2011)

Hence the importance of theology. If "experimental" use of reason is legitimate, good, and useful in its own sphere, it becomes insufficient and problematic when it attempts to be absolute. Saint Bonaventure speaks of a second "personal" use of reason, open to the major human questions and specifically open to love; for love wishes to know the person who loves better, love wishes to know the truth more fully and so people are capable of opening themselves to God and to others.

"When this type of reason is not used," Benedict XVI notes, "the great questions of humanity fall outside the context of reason and are left to irrationality" (Ibid.).

Ultimately, the reason that serves for dialogue with faith and building a bridge between faith and human realities (culture, sciences, etc.) is not mere experimental reason (instrumental or empirical), which is insufficient in itself for understanding all of the dimensions of the person and so is incapable of answering the deep questions human beings ask about their origin and dignity, the meaning of history and life, and destiny. It must be a *human reason*, in the widest and fullest sense of the term. Human reason can in itself attain truth, although it needs help to do so.

2.2. The mutual help between faith and reason

Reason can help faith explain itself, and it can warn when the believer is not

coherent with his faith in his intelligence or in his life.

For its part, faith can help reason expand in three directions: towards *wisdom*, towards *ethics*, and towards *faith* itself, without dispensing with the metaphysical and moral content of the religions of the world. For example, some degree of knowledge of Christianity is important to be able to understand literature and art. This requires attention to contemporary theological developments, although it does not necessarily need a sophisticated or erudite theology, as even a non-believer or a believer with little education could benefit from the principal *reasons* of faith.

Faith and reason need each other. They mutually enrich and purify one another in the particularities of human experiences, expressions, and behaviour.

Newman offers a good reading in this perspective. For him *theology* helps give a unified meaning to types of knowledge at the same time as providing answers to the "ultimate questions" that the sciences cannot resolve.

Theology can also enrich scientific narratives so that they do not degenerate into technocracies, that is to say, the unstoppable power of technology that crushes the liberty of humankind and makes it incapable of defending its being and its sense. At the same time, theology reminds everyone that the real in its total sense is incomprehensible for humankind. None of this involves a negative view of knowledge or a process of meddling in the identity and method of the human sciences; rather, it opens them to a relationship with a wider field of knowledge, a relationship that can drive research from within the sciences.

2.3. The dialogue between ethics, sciences and religion

The relationship between faith and reason is expressed in the dialogue between *faith and science* and, more broadly, between *faith and culture*. Science helps faith — in empirical aspects or with proven discoveries in the scientific field — to reinforce or complete the comprehension of God's original plan for humankind and the universe. (For example, the big bang theory is not only not opposed to what faith teaches, but it introduces an element of *rationality* into faith's affirmation that there is a divine *Logos* in God's original plan for humankind and the universe). And faith makes it possible for scientific progress to be truly directed at the good and the truth of humankind while being faithful to the divine design.

In a Christian-inspired university or school, the teaching of religion aims to illuminate the educational effort, complementing the other areas of knowledge with which the various subjects are concerned: it can help them to uncover the foundations — often Christian — that underpin them, how to serve humankind truly without dehumanising it, and the meaning of life and the values underlying the different approaches.

In turn, ethics and human sciences can help religion in its work of promoting the

true good of people, which is situated in connection with truth, love, and true beauty. It is not, therefore, a matter of hiding the errors, lack of faith, and wrongdoing of Christians but rather of recognising these while placing them in their social and historical contexts.

Accordingly, the education provided can more coherently aspire to the intellectual and human maturation of the students. This is all done with respect for the autonomy, identity, and method of the different subjects of study, whether they be sciences, humanities, etc. Religion offers other subjects their own perspective, which nowadays, we might say, is that of Christian humanism. The dialogue between subjects, which religion seeks to encourage and illuminate, can be expressed in specific interdisciplinary topics or projects as a way of developing the synthesis between faith and culture, that helps students and can also be of benefit in a variety of ways for their families.

Interdisciplinarity must be understood here not so much as simple multidisciplinarity (an approach that favours a better understanding of an object of study by contemplating it from various perspectives) but as *transdisciplinarity* (in other words, a knowledge that integrates various disciplines and aspires to wisdom in relation to reality, something that can involve going beyond the empirical sciences and even academic disciplines) (cf. Apostolic Constitution *Veritatis gaudium*, 2017, no. 4).

So, in this way an *integral education* is sought — or perhaps rather a pedagogy of personal integration (Beltramo, 2018) — that is open to transcendence. This is also the best course for attaining what students seek and families desire: an *education that promotes the integration* of the person specifically into the Christian perspective of faith — there are no "neutral" perspectives (Romera, 2020, pp. 31-36) — and into its relationship with culture.

3. Theological or scientific-doctrinal training

In what is set out above, it is understood that education in faith must take care of what we could call the *theological or scientific-doctrinal dimension* of Christian education. Here it is worth considering in greater depth whether theology is a science, how it relates to the subjects commonly known as "sciences", and what types of knowledge it contributes to school or academic education. Theology is also wisdom in the service of evangelisation and Christian life, and it has an important social function.

3.1. Theology and the sciences

Theology is a *science*, not in the modern sense of the empirical sciences — which obtain their knowledge through observation and develop their method experimentally — but rather in the earlier and more profound definition of a science, according to Aristotle: true knowledge of something by its causes.

In this sense, Thomas Aquinas claims that theology is a science that is superior to the human sciences. Theology is not

just a science because it transmits knowledge about God and reflects on God, but above all because it shares in the knowledge that God himself has about himself and his works.

Theology presupposes, first of all, a good relationship between faith and reason, in other words, as we have already seen, between a lived faith (not just theoretical) and a human reason (a broader reason than experimental reason).

As Benedict XVI noted, in the address mentioned above on the event of the conferral of the Ratzinger Prize, expanded human reason — which must also serve as a framework for experimental reason — opens itself to the light and guidance of faith in *theological science*:

> Right faith directs reason to open itself to the divine, so that, guided by love for the truth, it may know God more closely. The initiative for this journey is with God, who has placed in human hearts the desire to seek his Face. On the one hand humility, which lets itself be "touched" by God, and on the other, the discipline bound to the order of reason that keeps love from blindness and helps to develop its visual power, are both part of theology. (Benedict XVI, 2011)

However, theological doctrine does not limit itself to questions of Catholic dogma, that is to say, to the truths contained in the Creed or solemnly defined by popes or major councils. It also comprises, on the one hand, the knowledge of God or the divine work that can be attained with the light of reason, although reason alone often encounters major difficulties in attaining them, and it does so in a fragmentary fashion so that it is faith that gives them unity and certainty. On the other hand, the truths of faith are closely related to the fundamental principles of Christian worship (liturgy) and Christian morality. These principles have remained largely identical since the start of Christianity, although they admit and even require expression and in-depth consideration under the guidance of the teaching of the Church. Accordingly, the "deposit of faith" cannot just be conserved faithfully but also transmitted and understood in all of its brilliance and richness of content, in accordance with the needs of times and places.

This is what Newman says about the need for theology and its relationship to the sciences:

> the various branches of knowledge … so hang together, that none can be neglected without prejudice to the perfection of the rest, and if Theology be a branch of knowledge … of unutterable importance, and of supreme influence, to what conclusion are we brought from these two premisses but this? That to withdraw Theology from the public schools is to impair the completeness and to invalidate the trustworthiness of all that is actually taught in them. … if this Science, even as human reason may attain to it, has such claims on the regard, and enters so variously into the objects, of the Professor of Universal Knowledge, how can any Catholic imagine that it is possible for him to cultivate Philosophy and Science with due attention to their ultimate end, which

> is Truth, supposing that system of revealed facts and principles, which Constitutes the Catholic Faith ... be omitted from among the subjects of his teaching? In a word, Religious Truth is not only a portion, but a condition of general knowledge. (Newman, 2016, p. 68)

It is worth noting that Newman refers *in recto* to natural theology (theological development based on reason), although *in obliquo* his argument applies to all of theology *tout court*.

3.2. Speculative and practical theology

As well as being a science, theology is also *wisdom* in the service of a Christian life, of the Church, and of the world.

The teaching of theology — or the teaching of Catholicism — is a matter of ensuring that students can have a "Christian head or mind" because faith illuminates their reason, provides a sense and a direction for their lives, and brings culture to life. And it does this both in the topics of speculative theology — the contemplation of God based on this works and in himself — and in the area of the practical dimension of theology — that is to say, that which is related to moral, social, evangelising action, etc.

In other words, it is a matter of preparing students to work individually and jointly with other members of society, the family, and the Church; for all that can or should be done — also in the broad field of human knowledge and of social relationships — with the aim of sharing in the grace of God that acts in each individual and in others.

All teachers of theology or Christianity must open the intelligence of their students to the *living and organic unity of faith*. This requires a great *opening* in educators in faith to allow themselves to be addressed by all that surrounds them, and to give new answers to new questions on the basis of the same Christian "deposit of faith".

As Pope Francis has said, "those responsible for education and formation ... have the challenging task of training children and youth in schools or other settings, should be conscious that their responsibility extends also to the moral, spiritual and social aspects of life" (2020, no. 114). The attitude of openness to divine promises beyond the already known physical space is characteristic of faith, as we can already see in Abraham (Martini, 2002, pp. 50 and passim.; Bergoglio, 2013, pp. 174-177).

It is interesting to take into account what is now known as the "way of beauty" (Pontifical Council for Culture, 2006; for an introduction to the topic of beauty in relation to faith, cf. Forte, 2004). This is something that is increasingly important owing to its potential impact. This path, with regards to faith, calls for a greater capacity for attraction than demonstration, but it does not exclude intelligence, instead calling for it to be cultivated. It is a case of offering students the right tools, which, from the radiance of beauty, enable them to delve into the search for Truth and Good, which are precisely in the living origin and root of beauty. So, little by little and with the trust of

the children of God, they can follow the paths of the rationality of the created world and the desires of the human heart, without satisfying themselves with facile explanations or with comfortable attitudes to life. This can be called *creative faithfulness*.

Theology is also placed *at the service of the Christian life and evangelisation*. Therefore the language used in teaching Catholicism must be characterised by clarity, quality, and imaginative adaptation to students' circumstances.

Theology also has a *social function* in addition to its scientific dimension and its Christian and ecclesiastical service. Theology – and with it the teaching of Catholicism – must accompany cultural and social processes, and address the conflicts that arise in both the Church and society. The teaching of theology must additionally be an expression of a Church that is a "field hospital" and so can and must reflect the centrality of compassion (cf. Francis, 2015).

Consequently, no student or teacher of theology can settle for accumulating or sharing data and information about Christian revelation, without engaging in events; instead they must be "a person capable of building humanity around him, passing on the divine Christian truth in a truly human dimension, and not a talentless intellectual, an ethicist lacking in goodwill or a bureaucrat of the sacred" (Ibid.; see also the Address of Pope Francis on June 21, 2019, during his visit to the Faculty of Theology of Naples).

4. Lights of Christian revelation for moral education

In a speech from 1984 published as *"El debate moral. Cuestiones sobre la fundamentación de los valores éticos (The moral debate. Questions on the foundation of ethical values)"* (2018), Cardinal Ratzinger asked where the teachers for training the moral conscience are, teachers who help us to perceive the inner voice of our own being and who do not impose a "super-ego" on us that is foreign to us and would take away our freedom.

He explains that what ancient human tradition calls "witnesses of good" are involved here: virtuous people who were not just capable of making moral valuations, beyond their personal tastes or interests. They were also capable of discerning the basic moral rules that are transmitted in cultures, even though in some cases they may have become deteriorated or corrupted.

4.1. Reason, experience, and wisdom of peoples

These true teachers of morality were able to accept not only reasonable experience but also experience that transcends reason because it proceeds from earlier sources, specifically from the wisdom of peoples, and so this experience is the foundation of rationality itself with which they enter into communal rules.

So we can see that morality is not enclosed in subjectivity, but instead is related to the human community. "All morality," Ratzinger says, "needs an us, with its pre-rational and supra-rational experiences, in which it is not just the calcula-

tion of the moment that matters, but the involvement of the wisdom of the generations" (2018, pp. 683-684). A wisdom that involves knowing how to return, always anew and to a certain degree, to the "original virtues", in other words, to "the fundamental normative forms of the human being" (p. 684). (On virtues as forms of moral life, see Guardini, 1963/2006).

This is a good explanation of how morality — which necessarily refers to *values*, *virtues*, and *norms* — is founded on the relationships between reason, experience, and tradition. This explanation overcomes the short-sightedness of the individualist outlook that cannot perceive the place of the transcendence of the person towards the others and towards God.

4.2. Jesus Christ as guarantor of human morality

Ratzinger then focusses the light of Christian revelation on these anthropological foundations of morality. Revelation provides a set of moral rules through a wisdom. And this morality is largely determined by the "nature" of beings, that is to say, their own way of being and acting.

The problem is that in the modern era we find it hard to admit the existence of a nature understood in this way, because we reduce the world to a set of material realities that can be calculated in a utilitarian fashion. But then the choice is maintained of *whether the material proceeds from reason* — from a creative reason that is not just mathematical, but also aesthetic and moral — or on the contrary *whether reason proceeds from the material* (the materialist position).

The Christian position is based on the rationality of the being. And this in turn, Ratzinger notes, depends decisively on the question of God. If there is no *logos* — reason — at the start, there is no rationality in things. For Kolakowski this means that if God does not exist, then there is no morality, nor a truly human "being", namely, a way of being common to all people, that enables us to speak of human nature.

In effect, this sounds like what Dostoevsky's famous character Ivan said: "If God does not exist, everything is permitted" (*The Brothers Karamazov*). While this may sound radical to contemporary ears, it has been sufficiently confirmed in recent centuries.

What should we do then to understand and teach morality? Ratzinger upholds that we do not so much need *specialists* as *witnesses*. And with this he returns to the question of the true "teachers of morality". It is worth transcribing this paragraph in full:

> The great witnesses of good in history, whom we normally call saints, are the true specialists in morality who today still continue to open up horizons. They do not teach what they themselves have invented, and this is why they are great. They bear witness to the practical wisdom in which the original wisdom of humankind is purified, safeguarded, deepened, and expanded through contact with God, in the capacity for acceptance of the truth of the conscience which, in communion with the conscience of the other great witnesses, with the witness of God, Jesus Christ, has made itself man's communication with truth. (Ratzinger, 2018, p. 687)

Ratzinger notes that the uselessness of scientific efforts and ethical reflection do not follow from this, as "from the point of view of morality, observation and study of reality and tradition are important, they form part of the depth of the conscience" (2018, p. 688).

Ratzinger proposed three points that are, in our view, enlightening in the current debate on morality and so enrich the reflection on education in Christian faith and life, from reason and experience, tradition, and the openness to transcendence that are characteristic of a Christian anthropology (see the thought-provoking and now classical presentation by Mouroux, 2001).

1) "Along with skill and aesthetics, there is also in man *a moral reason*, which needs its own care and formation" (Ratzinger, 2018, p. 688, also for the following quotations).

2) For moral knowledge to be able to grow and develop, *the moral experience of humanity* is needed, and "common reflection and life in common" are required "in the historical experimentation of good, which has other laws and other tendencies than the experimentation of the natural sciences" and this requires patience and humility.

3) "Moral reason and the question of God are not separated". "Therefore, the great moral experiences of humankind have occurred in the context of responding to the question of God".

Therefore, Ratzinger understood, conversion to God and faith in God make it possible to "hear the language of creation". And for this reason, Christian faith continues, also in our enlightened time, to be a rule against which should be measured the moral expressions of the old and new problems of today and tomorrow.

And he took a stand in favour of a truly human anthropology, as the living foundation of morality and therefore of the conscience. Furthermore, to underpin morality, anthropology needs a sufficiently broad (human) reason, which here is called *a moral reason* (instrumental or calculating reason is not enough). Moral education requires a reason that opens itself up to and can actually access affective experience and the tradition of humankind, and which can place itself on the path of transcendence regarding others and God.

In Ratzinger's words:

> Only access to the area of experience of the truly human enables honest recognition and learning of the moral dimension of reality. The opening of our reason to this dimension of recognition is, therefore, the true command of a new enlightenment, which comprises the challenge of the current hour. (Ratzinger, 2018, p. 688)

Up to here, I have been discussing Ratzinger's text from 1984. Each of the pillars he mentions in his address — which we can simply call reason, experience, and tradition — are living channels that communicate with each other and open up to transcendence from the centre of the person.

According to Christian faith and tradition, reason and experience as well as tradition and openness to transcendence find their centre of reference in the figure of Christ and in the mystery of Christ, in which we participate through the Church, through knowledge and love, through the redeeming action of the Trinity.

Therefore, the encounter with Christ, the reference to him, the union with him, the identification with his mind, with his feelings, and with his attitudes of deep and unique solidarity with everyone, are, in the Christian perspective, the route to a full life, also morally speaking. The moral life of the Christian is "life in Christ" and life of grace (see *Catechism of the Catholic Church*, part III. see Pellitero, 2019, pp. 135-155).

From this centre and with these dimensions, Christian moral education can be understood: the reason of the Christian, the Christian experience, the Christian tradition, transcendence understood and lived in the Christian way. All of this is very much compatible with the vision of the person Christian authors inherited from classical athors and purified and perfected with the lights of Christian revelation.

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Home, School, and City: Cultivating language in a digital world*

Casa, Escuela y Ciudad: el cultivo del lenguaje en un mundo digital

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Abstract:

This paper aims to show the importance of language and the challenges it faces in the digital revolution by considering the possibilities for cultivating it during adolescence in three fundamental spaces: Homes, Schools, and Cities. It starts by analysing the dual function of language as a means of both communication and representation, as how one receives one's heritage and imagines and projects one's future. It then considers the false dichotomy between digital competency and reading skills in light of the latest results from the *Programme for International Student Assessment* (PISA). Reading can no longer be understood just as the ability to enjoy dusty volumes of old classics languishing on library bookshelves. Rather, it can be defined as a set of strategies that enable personal development and participation in society. This extension of the concept inexorably involves the competence of acting creatively in digital environments. Unfortunately, these environments go largely unheeded at School, where they are relegated to the mundane world of play. At Home, however, digital discourse can be experienced as unfathomable, where the digital divide makes it a world apart. Therefore, collaboration between School and Home becomes vital for ensuring that adolescents' immersion in the digital world

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leads to critical, responsible participation in citizenship.

Keywords: language, adolescence, digital competence, multimodal communication, PISA report, school, home, city.

Resumen:

Este trabajo pretende mostrar la importancia del lenguaje y los retos que se le presentan en la llamada revolución digital, prestando atención a las posibilidades de su cultivo durante la adolescencia en tres espacios educativos fundamentales: Casa, Escuela y Ciudad. En primer lugar, se analiza la doble función del lenguaje como modo de comunicación y de representación, como vía por la que se recibe la herencia y se imagina y proyecta el futuro. A continuación, de mano de los últimos resultados del *Programme for International Student Assessment* (PISA) se aborda la falsa dicotomía que contrapone la competencia digital a la capacidad lectora. Esta ya no puede entenderse hoy solo como la capacidad de disfrutar del polvo de los grandes textos del pasado encerrados en las bibliotecas, sino que se define como un conjunto de estrategias que permiten el desarrollo personal y la participación en la sociedad. Esta ampliación del concepto involucra inexorablemente la competencia para moverse creativamente en los entornos digitales. A pesar de ello, estos entornos no reciben la atención necesaria en la Escuela y se ven relegados al ámbito de lo cotidiano, de lo lúdico. En el círculo de la Casa, el discurso digital puede ser vivido como algo inabarcable, afectado por una brecha que lo presenta como un mundo aparte. La colaboración de la Escuela y la Casa resulta, sin embargo, ineludible si queremos que la inmersión adolescente en el mundo digital dé lugar a una participación ciudadana crítica y responsable.

Descriptores: lengua, adolescencia, competencia digital, comunicación multimodal, informe PISA, escuela, casa, ciudad.

"The world was so recent that many things lacked names, and in order to indicate them it was necessary to point."

One hundred years of solitude.
Gabriel García Márquez

1. Introduction

One of the most influential claims in the philosophy of the 20th century was made by Ludwig Wittgenstein (1975): "The limits of my language mean the limits of my world". This statement produced the linguistic turn, which introduced language as a key tool for understanding reality. This has given rise to much-debated philosophical positions, such as linguistic solipsism, but it has also led to theories that exalt language as a collective activity.

According to Humboldt (Di Cesare, 1999), knowledge is a process of configuration that happens not only "with" language but "in" language. Language is

the quintessential manifestation of the human spirit and the creativity of humankind as a whole is revealed in it. This means that it is hard to perceive what *we have not made language*; it becomes invisible to thinking, to discussion. Therefore, cultivating language means cultivating the world view, the relationship with the world and the other, cultivating thought and discussion, thinking and living, the belief and the idea.

Language is home to the maternal soul, history, affective roots, feeling and consciousness, the mysteries in which life is rooted. We have the same experience as Arendt for whom "German was [her] Heimat ('home')" (Young-Bruehl, 2006, p. 64). Each mother tongue is the home from which an individual thinks the world and understands itself and the other. Language is the home and foundation of reasoning, rigour, the *rational*, dialogue and agreement. As Arendt notes, "a certain deafness to linguistic meanings … has resulted in a kind of blindness with respect to the realities they correspond to" (Arendt, 1972, pp. 145-146). The study of language reveals itself to be a way of arriving at knowledge of reality. For Humboldt, language is not a completed task but an activity; a repeated effort by the spirit to enable articulated sound to become the expression of thought (Di Cesare, 1999). Therefore, an education that values itself respectfully and openly cares for its language and the cultivation of intelligence that this contains.

The present work sets out to show the importance of language as a way of representing and knowing reality, and the challenges posed for it by the so-called digital revolution, considering the possibilities for cultivating it during adolescence in three fundamental educational spaces: the Home, the School, and the City.

2. Language: representation and knowledge of reality

Transmitting a language means helping to understand a way of seeing the world, of feeling it, of thinking it, and of accommodating the sense from which every society in this world is interpreted. Language nourishes beliefs and ideas according to Ortega y Gasset:

> We should, therefore, leave this term — *ideas* — to denote all that appears in our life as the result of our intellectual activity. But beliefs are presented to us with a different character. We do not arrive at them after a labour of understanding; instead they already operate deep within us when we set out to think about something. This is why we do not usually formulate them, but instead are happy to allude to them as we generally do with all that is reality itself for us. Theories, in contrast, even the most truthful ones, exist only while they are being thought: hence they must be formulated (Ortega y Gasset, 1983, p. 384).

This shows us that everything we are able to think in reality already occupies a secondary place if we put it into relationship with our true beliefs. "We do not think about them now or then: our relationship with them comprises something much more efficient; it consists of … having them at all times, without pause" (ibid., p. 386).

Language has this capacity to be a belief and to express and communicate ideas:

> We forget too readily that language is already thought, doctrine. When using it as an instrument for more complex ideological combinations, we do not take seriously the primary ideology that it expresses, that it is. When, by chance, we cease to concern ourselves with what we wish to say through preestablished turns of phrase and we pay attention to what they tell us for their own account, we are surprised by their incisiveness, their perceptive uncovering of reality. (ibid., p. 393)

If we forget the depth and the roots of our belief, we cannot think it. A theoretical reflection that does not consider in depth one's individual thinking that appears in language itself remains blind to an irreplaceable knowledge and it remains blind even to itself.

Aristotle, according to Nussbaum's interpretation, recognises that "To set down the phainomena is not to look for belief-free fact, but to record our linguistic usage and the structure of thought and belief which usage displays the *phainomena* does not mean finding facts stripped of beliefs but registering new linguistic uses and the structure of thought and beliefs that they reveal" (Nussbaum, 2015, p. 319).

Consequently, accompanying new generations in the task of embracing and reconsidering the origin and facilitating their *innovation*, requires an in-depth consideration of language; an in-depth consideration of its meanings, its metaphors, its structure, its way of expressing and arguing, its metalanguage. True profound novelty with a deep and sincere response cannot be provided if we do not truly consider language in depth. A generation that does not take what it receives seriously cannot provide a renovation that contains the density that what is received houses or that can respond to it. Therefore, it will be necessary to take this legacy seriously. Taking it from its reference points, reading it from its moment. Literature, with its historical path, must not be pushed aside by the study of grammar, for example.

And, the first thing to recognise is that there is no single form of language, just as there is no single form of rationality. The great mathematician and *grandfather of computing*, Charles Babbage, once wrote to the poet Alfred Tennyson:

> In your otherwise beautiful poem, one verse reads:
>
> "Every moment dies a man, every moment one is born".
>
> I need hardly point out to you that this calculation would tend to keep the sum total of world's population in a state of perpetual equipoise, whereas it is a well-known fact that the said sum total is constantly on the increase.
>
> I would therefore take the liberty of suggesting that, in the next edition of your excellent poem, the erroneous calculation to which I refer should be corrected as follows: "Every moment dies a man, and one and a sixteenth is born". I may add that the exact figures are 1.167, but something must, of course, be conceded to the laws of meter. (Ahearn, 2012, p. 53)

The letter is probably part of a joke between members of the Royal Society, but it reflects two complementary forms of rationality: the scientific-mathematic and the poetic-existential. Both are profound, both true, both absurd if one reads the other with a closed mind.

Both forms of rationality enrich the human being, they are typical of it, but they blind humanity if one attempts to interpret the world without the other. Teaching how to decide which matters pertain to each one is part of the rigour of an expanded rationality, of an open reason. To do so, it is necessary to distinguish between *problems* and *mysteries*, as Marcel (1987) helped us to do. What is clear is that language tackles, sets forth, describes, explains, and comprehends both problems and mysteries, both argumentative rationality that can handle formal mathematical logic and comprehending or approaching the mysteries of life.

So, the language to be cultivated must be that which addresses problems and that which considers mysteries. These rationalities complement each other without any need to come into conflict. They enrich each another by showing the need to maintain the mystery and wonder in science and technology, as well as the need to ensure rigorous argumentation regarding what concerns existence. This fruitful and coherent dialogue is part of the inheritance of our own history, which schools must jealously protect. Ortega's vital reason or Zambrano's poetic reason are two magnificent attempts among others to limit the domination of instrumental reason over a broader reason, attempts that might come to nothing without the committed involvement of teachers. Logic and grammar, like semantics and semiotics are fundamental axes for rationality and for cultivating intelligence.

Distinguishing between problems and mysteries, transcending a reductionist and instrumental reason, must be accompanied by the cultivation of language in the field of social and political life. Language, which is the

> protean place dwelling of thought, is the great resource for naming, defining and understanding things, "that which is", reality itself. But language loses its epiphanic and innovative power, its unveiling and declarative force, when social relationships and community links are hidden and disappear. Language then, as Wittgenstein observed, "marches in the void". (Uña, 2014, p. 17)

Language must abide by its values, by the links through which it is rooted as a dwelling place that provides it with the sap that feeds meanings, but it must also be aware of its limits and the possibility of other languages that expand the outlook and depth when considering reality in different ways.

Furthermore, language can become totalitarian as it seeks to contain reality in itself and does not allow itself to be exceeded, completed, expanded by it:

> But certainly for the present age, which prefers the sign to the thing signified, the copy to the original, fancy to reality, the appearance to the essence, … for in these days illusion only is sacred, truth profane. Nay, sacredness is held to be enhanced in

> proportion as truth decreases and illusion increases, so that the highest degree of illusion comes to be the highest degree of sacredness. (Feuerbach, preface to the second edition of *The Essence of Christianity*, cited by Debord, 1967, p. 7)

Language acts as an *external teacher* (García Baró, 2018), as the legacy deriving from others that illuminates reality for us. It is also an *inner teacher*, insofar as it shapes us and helps us to understand who we are and what paths open up before us. Nonetheless, insofar as it is separated from reality and from one's self and from the other it becomes a pure illusion, it ceases to act as an external and inner teacher and becomes a totalitarian conception, in control.

3. Crossroads for language in a digital world

In July 2020, alarm bells sounded. After a delay of several months in publishing the data, the results for Spanish students in the most recent reading evaluation by the *Programme for International Student Assessment* (PISA) had dropped 19 points compared with the previous edition giving the lowest figure in 14 years and putting Spain below the mean of the countries of the European Union and OECD (MEFP, 2020).

Although some technical explanations were offered that might cast doubt on the validity of these results (OECD, 2019), the truth is that they intensified the feeling, which had been persistent since the first international evaluations, of the low performance of Spain's students in reading comprehension, in command of language. This has undergone large variations over the different editions of the test, but, in general, has always been below the mean of the OECD states, with small numbers of students achieving the highest performance levels (MEFP, 2020, p. 14).

With regards to the action of families specifically, the latest PISA report shows that "without detracting from the efforts of formal education to reduce social inequalities, the socioeconomic and cultural situation of families is still the most reliable variable for predicting school attainment" (ibid., p. 28). Accordingly, students from advantaged socioeconomic groups have a mean performance in reading that is significantly higher than that of students from disadvantaged groups. Across the OECD countries as a whole, the mean score for the former group is 88 points higher than for the latter. In Spain this difference is 74 points (ibid., pp. 29-31).

These results from the PISA report were published in the peculiar circumstance of the obligatory lockdown resulting from the Covid-19 pandemic, with students at home supposedly following online teaching, something that has led to calls for better training in digital competence, not just for teachers and students, but also for families. Also regarding this competence, if the lockdown experienced in 2020 has made one thing clear, this is the significant impact of family conditions on students' chances, aggravated by the so-called digital divide.

The concurrence of the publication of the PISA results with lockdown and calls for better digital training inspired a debate: we demand greater digital capacity among students, while we leave them in a state of illiteracy with regards to reading. But is this really a dichotomy? Let us consider another current phenomenon: "post-truth", a term chosen in 2016 by the Oxford University Press as its word of the year. Post-truth has been defined as "a result of societal mega-trends such as a decline in social capital, growing economic inequality, increased polarization, declining trust in science, and an increasingly fractionated media landscape" (Lewandowsky et al., 2017, p. 353). It offers a distorted reality that is manipulated to influence public opinion through emotions.

One key element in understanding post-truth in the media is fake news. During the Covid-19 pandemic not only have health, economic, and social systems been put at risk, but false and manipulated information has proliferated, so much so that the World Health Organization has said that one of its objectives was to fight against the "infodemic". This term refers to an excess of information on a subject that, mixed with fear, speculation, and rumours, is amplified and distributed to a global audience through the use of technologies (García-Marín, 2020). The spread of the "infodemic" has caused numerous problems for public health (Zarocostas, 2020).

Reading competence cannot be ignored in relation to these types of phenomena that surround current life. It can no longer be regarded only as the capacity to enjoy dusty volumes of old classics languishing on library bookshelves. Instead the OECD defines it as a set of strategies that enable students "to achieve one's goals, to develop one's knowledge and potential, and to participate in society" (MEFP, 2020, p. 8). Nowadays the information that makes this social knowledge and participation possible mainly reaches us through digital media, and it is significant that in Spain young people's low reading competence scores run in parallel with the population's general difficulties with distinguishing the truthfulness of information. In a survey carried out by Ipsos in 27 countries, 57% of Spanish people admitted that that they had sometimes believed a false news story, making them the Europeans most prone to falling into this trap the (Ipsos, 2018).

Of course, it is not just a matter of introducing digital resources into education, as though a magical effect from exposure to them could be expected. Instead, much of this effect depends on how these resources are used and some indiscriminate forms of exposure in everyday activity can in fact have an outcome opposite to the one desired (Vázquez-Cano, 2017; Fernández-Gutiérrez et al., 2020; Vázquez-Cano et al., 2020). There is a real risk that idolising the digital will give new wings to the modern hostility towards language and the old "bookish pedagogy" in contrast with direct exper imentation with things, denounced by the German educationalist Otto Friedrich Bollnow. This hostility, according to Bollnow, can only come from a weak comprehension of the mutually generative

relationship between words and things and of the central place of language in the constitution of the human being:

> Man only becomes himself through language. He only rises above the vacillating time by virtue of the freely chosen bond to the word that transcends time. The dignity of language as a medium of education is, ultimately, based on this. (Bollnow, 1974, p. 206)

But this bond which Bollnow discusses nowadays has distinctive characteristics. One of the terms that best defines the current social, technological, and cultural advances and changes is *convergence culture*. This term refers to the "flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behaviour of media audiences who would go almost anywhere in search of the kinds of entertainment experiences they wanted" (Jenkins, 2008, p. 14). In convergence culture, the frontiers between consumer and producer are blurred and the individual is constantly invited to intervene.

In the field of education there is a media and educational convergence: spaces and moments of learning converge at the same time and formal, non-formal, and informal educational settings merge. Communicative capacity is still worked on in educational institutions. However, there are contexts that are not included. Simply having access to a device connected to the internet now makes communicative practices continuous and constant. There are millions of texts and pieces of data on the internet and there is an exponential increase in interlocutors, making it very difficult to know all of the factors — provenance, accuracy, intention, etc. — needed to be able to interpret the language. Interpreting this information is already complex, but we must add the multimodality of texts, in which meaning can only be understood by combining the word with the image, audio, animation, or intertextuality and hypertextuality, which oblige us to construct the discourse, and even the hybridisation of textual genres (Cassany, 2012).

An awareness of the importance of language in education can help us to rediscover its potential and pay sufficient attention to it as it has too often been subjected to multiple distractions. Basic language skills such as reading and writing cannot be left to chance, inside or outside school. Multiple literacy is a task where real and virtual learning environments must converge. We will now consider how to cultivate language for adolescents in the most important educational spaces — the home, the school, and the city — in the specific case of a world immersed in networks.

4. The spaces of language in adolescence: the Home, the School, and the City

4.1. Cultivating language at Home

It has been said that "learning to inhabit requires a phenomenological comprehension of the home and how the human being configures itself in this externalisation of interiority; ultimately, seeing the home as a space for shaping

habits" (Amilburu et al. 2018, p. 109). The home, and also the language spoken and taught in it, is a way of shaping habits and specifically cultivating the interiority that is expressed, explained, and understood.

Adolescents have to find a more personal, singular, unique way of cultivating language in this space. Interiority is expressed in the home from early childhood, and so the home must be the special space for stories, narrative, extended conversation, confidence. *Times and spaces* in which the adolescent can find herself in private and *alone with her own interiority* are necessary to do this, and, language emerges in this interiority as an inner teacher, from which the adolescent tries to comprehend herself. An adolescent's room is not like a child's. The child's door is open to the rest of the house or if it is closed, it is closed from outside. In preadolescence, the door starts to be closed from within. The adolescent has to delve into her interiority and consider it in greater depth. This interiority must be capable of solitude accompanied by language, the teacher that helps her understand herself. When her language is richer, more interconnected, deeper, and more meaningful, the questions with which she shuts herself in her room will be deeper and will have the potential to be answered from the self with the values of the heritage and productiveness language can offer. Adolescents without words are adolescents without questions, alone in solitude, alone before the angst of growing and confronting their own autonomy. This is how they can come to take refuge in solutions without answers.

The adolescent who inhabits the home does not just inhabit the room; in the shared spaces of the home she must be able to find casual conversation, questions about life and about the world. It is the site of the network of comments, questions, discussions, concerns; the place of reading and shared films, reflecting out loud with someone who speaks and listens, someone who debates and interpellates, who lifts her gaze, expands it, and returns her question. For the adolescent, the living room where communal life takes place is not the place of the discourses of others, what she has still not seen, what she has still not heard, it cannot be imposed by lecturing her. The adolescent's outlook now seeks horizons outside the family space, not inside it. But these can come from a bookshelf, told or narrated through the stories of others, or emerge from a screen to be shared from there.

If we could think of another fundamental place in the house for adolescents, this would be the kitchen. Here, they can work out decisions and concerns for which they seek solutions while their attention appears to be focussed on something else. The tranquillity offered by the option of being in silence when she wants because her attention is focussed on the task, without needing excuses while the next word emerges, means she can speak of what is important as though it were casual and stop speaking about it as if she had never spoken.

Taking care of these times and spaces means not being seduced by the impertinent and suggestive outside of social net-

works. Therefore, we must limit time and space for mobile phones and tablets but for an adolescent the fundamental thing is not this limitation, but rather that the alternative is full of productive company or solitude, ultimately, meaningfully shared words.

Although networks can invade the space of the home to excess, it is also true that they can form a space that extends the home. Friends have a WhatsApp group and so does the home. In it, the adolescent can find possibilities for beneficial communication in the setting of the home. This is more her space, and in here it can be easier to share and comment on events, jokes, and memes that reflect visions and opinions. Respecting this space to enrich debate, to be able to express diverse opinions *as between peers*, will favour discourse, discussion, and opening the us of the family to the world.

If conversation, narrative, debate, sharing literature and films, are magnificent occupations for adolescents in the space of the home, enquiry and negotiation are no less so. Enquiring into a question, starting from life itself, from observing and seeing the everyday, concerning oneself with a question, as the Little Prince did in Antoine de Saint-Exupéry's novel, without ever forgetting the question, is one of the fascinating tasks of sharing life with a child and with an adolescent. Sharing this passion with children and adolescents is not just a fundamental educational task but it also rejuvenates the adult's outlook and is the starting point for new discoveries. The everyday cannot overwhelm this fascination, the curiosity of someone who is coming into life with new questions. Negotiation is another of the fundamental questions of education in the family space. Providing the best arguments to convince, persuade, offer the most advantageous agreement, seek consensus or the most suitable way of finding a win-win situation… Enquiry and negotiation occur in the everyday and especially in play. Play, with its handling of feelings and emotions, at the same time as the word, agreements, alliances, or coalitions, teaches how to relate to others, especially in the home space.

We could carry on and go into greater depth, but the limits of space mean we must consider in depth the complementary space of the school, where the adolescent ceases to be unique in the world and becomes one among many.

4.2. Cultivating language at School

Language and the reading of a tradition, a shared social heritage, a history, and a project beyond the us of the family, is fundamental in adolescence. This is none other than the contrast of what is received from the *humus* of the family and what is perceived from the perspective of a broader us.

The axis of the outlook therefore changes. The adolescent is no longer unique; she is one more person and must learn to live this experience, and also to enjoy it. Enriching oneself in this broader us, being fascinated and allowing oneself to be attracted by the other, is the essential experience of adolescence. Entering into School from the start means receiving

systematicness, order, and rigour and, especially in adolescence, making these the criteria for presenting oneself to the outside world. Here the discussion set out for an us and an other who may not have the same interpretative keys becomes important, thus necessitating an effort of communication. University teachers often encounter texts that students have written from themselves, with great richness, but not to be read by others. This would largely be a fundamental part of the task of the school: teaching how, with the wealth of the shared heritage, to express the novelty each individual brings so that it is understood by the other. To do this, it is necessary to consider monologic and dialogic language, in essays and narrative, but also in debate.

School is the privileged site for rigorously distinguishing what one must confront, which language to use, and the appropriate method for each question. School also has various spaces for this play with language: the solitary desk where one listens to lessons, dissertations, narrations, and so on, or where one writes one's own reflective commentary or tackles a problem with nothing but the clothes on one's back, with what one has brought from home; the shared table for doing group work, debating, negotiating, enquiring with the other; the chair in the assembly hall in which one attends presentations, debates, the spectacle of a lecture, or a production of a play; outings, field trips or visits to museums, the same places are experienced differently with the School than with the family. School cannot neglect distinguishing and cultivating each and every form of language. Each one contributes a specific type of discussion and way of relating to the other, to oneself, and to society.

4.3. Cultivating language in the City

Adolescents do not just act at Home or at School; they also create discourses in other media. The will to relate with others means that they encourage each other to participate in different forums, and, unlike in the cases above, they interact with people who are not part of their close environment.

Adolescents are particularly present in certain online settings, for example YouTube, where they often write messages to set out their experiences or to show their opinions (Pérez-Torres et al., 2018). Popular culture encourages participation and the need to form part of a group, and this even has effects on discursive presentation. In adolescent discourse produced in online settings, language use is adapted to a particular genre, and a discourse variety appears that is different to the one used in the school and family settings (Palazzo, 2010). Discourse, resulting from interactions, influences the shaping of their identities and the construction of their ideologies, this notion being understood as a social, dynamic, and plural phenomenon, which is constructed over time in different social environments and in interaction with other people (Gee, 2001).

Networks mean that people's social participation increases. In 2006, the cover of *Time* magazine was a mirror to show

that each one of us was the person of the year. It paid homage to internet users and their potential to form part of the new digital democracy with their voices. We have been given a loudspeaker to transmit our messages; there has been a shift from mere reception of messages to the production of all types.

Isogoria, as the equal use by all of the word, appears to be more protected with the spread of the use of social networks, but the same fate seems not to have befallen *parrhesia*. The ability to speak correctly and the option and commitment to do so frankly do not always combine (Foucault, 2004). Truthful use of the word does not seem to be recognised as an unquestionable and non-negotiable value in the public sphere, and so the word loses its strength, its core, and its creative capacity is emptied. In fact, in a more profound sense, it is possible that *isogoria* itself also loses strength, even in the field of networks. Different voices that are not in line with the politically correct are silenced. They are attacked and exposed to public view for an undefined period of time and the possibility of being listened to and read in context is lost while at the same time the possibility arises that they will be taken out of context and posted where their interpretation might be partial. All of this, in a grim process, silences certain critical voices or those who do not want to run the risk of being subjected to a possible socio-political trial in any place and at any time. Social death on networks and being subjected to public scorn becomes a dissuasive force for many people.

Interacting on social networks is not simple. It requires learning a series of things. Nonetheless, the discourse produced in virtual settings is often ignored by Schools and relegated to the sphere of the everyday and play. In the context of the Home, it can be seen as something unmanageable, something people do not known how to tackle owing to a generational or digital divide. For this participation in social networks to result in responsible public participation, School and Home cannot distance themselves from the interactions that take place in digital settings. Consequently, the first step is to recognise the importance of dialogue with adolescents so they are aware of their interests and surroundings, so they are revealed to us.

5. Conclusion: thinking, reading, and conversing in a world of networks

Austin (1975) highlighted the performative dimension of language, how words are not just an expression but that by being expressed they can produce facts. Language enables us to receive and transmit information, but also to influence other people or be influenced by them. For this reason, language must be dealt with by the Home and the School, which will make adolescents able to use it in the City. However, this is not without risks. One risk is reducing knowledge of language to certain areas of communication without taking into account other contexts that have considerable influence. The digital context must be approached both at Home and at School, and not seen as a minor area of communication where only playful in-

teractions occur. Language in digital settings can enable adolescents to build their identity, but it can also encourage them to contribute to transformative social action with their discourse.

To do this, these discursive practices must have projection in real life as language must be addressed from the real settings in which it is produced. The different textual types must be revealed at School and in the Home, including those that have been neglected because they are regarded as colloquial. It is not a matter of distorting language and excising from it the different practices that adolescents perform so they can be analysed, but instead of giving adolescents the capacity to participate in different fields of communication.

This is the multiliteracies approach (Cope & Kalantzis, 2009), which focusses on training active and creative people who are able to participate in settings where communication is multimodal, rather than working on specific skills and competences (Gutiérrez-Martín & Tyner, 2012). McLuhan (1994), with the apothegm "the medium is the message" noted that the form in which we access a piece of information has more of an effect than the information itself. Therefore, the cultivation of language must be approached with a multiple and global literacy, combining old and new forms of literacy and transcending the walls of the School. It must include media and information literacy, which, as UNESCO (2011) states, are prerequisites for equitable access to information and knowledge.

Language, as we have said, is inherited intelligence, but it is also the thread with which the possible future is woven. We cannot allow ourselves to be distracted from caring for it.

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Physical activity as means of cultivating intelligence in a school context*

La actividad física como medio para cultivar la inteligencia en el contexto escolar

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Abstract:

Intelligence is considered to be the ability to understand, reason, and make decisions based on a given situation. Neuroeducational advances in recent decades show that physical activity is a key variable for adequate development of intelligence, especially during the complex stage of adolescence. Numerous cross-sectional studies have considered the link between physical activity and intelligence, and the effects on intelligence of longitudinal physical activity intervention programmes have been analysed in several systematic reviews and meta-analyses. However, there have been fewer studies focussing on a more theoretical/epistemological approach and the development of specific practical proposals for didactic interventions within the educational setting. This work aims to show the most relevant scientific results relating to the association between and effects of physical activity on intelligence and it offers didactic guidelines and suggestions for the use of physical activity as a means of cultivating intelligence in a school setting. For this purpose, strategies based on increasing daily physical activity and physical fitness, the comprehensive use of physical education classes, active commuting

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to school and active school starts, active breaks and recesses, and finally the combined teaching of physically active academic sessions, are shown.

Keywords: physical activity, physically active classes, cognition, active breaks, physical education, intelligence, movement.

Resumen:

La inteligencia es considerada como la capacidad de entender, razonar, comprender y tomar decisiones con base en una situación determinada. Los avances neuroeducativos de las últimas décadas muestran que la actividad física es una variable clave para un adecuado desarrollo de la inteligencia, sobre todo durante la compleja etapa de la adolescencia. La asociación de la actividad física con la inteligencia ha sido abordada en múltiples estudios transversales, y los efectos de programas de intervención longitudinales entre actividad física e inteligencia han sido analizados en varios estudios de revisión sistemática y metanálisis. Sin embargo, son menos los estudios dedicados a un enfoque más teórico/epistemológico y al desarrollo de propuestas prácticas específicas de intervenciones didácticas dentro del contexto educativo. Este ensayo pretende mostrar los resultados científicos más relevantes de asociación y efectos de la actividad física en la inteligencia, así como ofrecer pautas y sugerencias didácticas para el empleo de la actividad física como medio para cultivar la inteligencia en el contexto escolar. Para ello, se muestran estrategias basadas en el aumento de la actividad física diaria y la condición física, el uso integral de las clases de Educación Física, el desplazamiento activo al colegio y los inicios escolares activos, los descansos y recreos activos, y finalmente la impartición combinada de sesiones académicas físicamente activas.

Descriptores: actividad física, clases físicamente activas, cognición, descansos activos, Educación Física, inteligencia, movimiento.

1. Introduction

Cultivating intelligence has been a focus of interest for educational professionals throughout history (Tomporowski et al., 2008). In recent decades the concept of intelligence has developed considerably from a concept associated with the intelligence quotient (IQ) (Hogan, 1978) to a broader one explained by different domains (Pérez-Sánchez et al., 2012). This latter tendency has precursors in new multifactor models such as Gardner's multiple intelligences (1983) or Sternberg's triarchic intelligence (1985). The new trends in the study of intelligence have also moved away from a traditional link to logical-mathematical ability, memory, or linguistic aspects to a more global assessment including aspects relating to kinaesthetic-corporal intelligence, spatial intelligence, emotional intelligence, and creativity (Petrides et al., 2016; Ruiz-Ariza et al., 2019).

In the field of education, intelligence is regarded as a vital element for assimilating,

reasoning, and correctly processing information, and it has a decisive role in the control of executive functions and appropriate behaviour for learning (Esteban-Cornejo et al., 2015; Ruiz-Ariza et al., 2017b). It has been found that intelligence can improve all through the educational phase and is associated with better academic performance and more future professional success (Petrides et al., 2016; Tomporowski et al., 2008). The child's brain displaying great plasticity and a great capacity for learning in school years (Hillman et al., 2008). Nonetheless, adolescence is believed to be a critical stage from a developmental, hormonal, and social perspective, and sometimes results in stagnation of intellectual abilities and academic decline (Esteban-Cornejo et al., 2015). For some researchers, routine practice of physical activity (PA) can help with appropriate maturation during this stage and significantly influence the young people's intellectual development (Åberg et al., 2009).

Many systematic reviews and meta-analyses in the last decade have shown that systematic PA improves mental performance, processes that relate to human intelligence, and students' academic performance (Chaddock-Heyman et al., 2014; Esteban-Cornejo et al., 2015; Tomporowski et al., 2008). However, the concept of PA and its educational area of application is very broad, encompassing multiple activities such as integrated use of physical education classes (Ardoy et al., 2014; Costigan et al., 2016), encouraging the practice of PA out of school (Bradley et al., 2013), active commuting to school or active school starts (García-Hermoso et al., 2020; Martínez-Gómez et al., 2011), active breaks and recesses (Ma et al., 2014), and physically active academic classes that combine active play with academic content in integrated tasks (Mavilidi et al., 2018).

In more detail, the practice of PA in school hours has demonstrated cognitive improvements in students such as neural efficiency, attention, concentration, decision making (Chaddock-Heyman et al., 2014), mathematical calculations (Martínez-López et al., 2018), and emotional intelligence and creativity (Ruiz-Ariza et al., 2019). Recent studies have shown that PA stimuli encourage cerebral synaptogenesis and increase levels of brain-derived neurotrophic factor (BDNF), increasing the cerebral connections that are involved in learning (Sleiman et al., 2016). Other authors support this relationship between PA and intelligence, based on theories of cognitive load and embodied cognition, which underpin the success of learning through the combination from early ages of motor play and the teaching of academic content through integrated PA (Mavilidi et al., 2018, 2019).

Nonetheless, most schools still use a traditional sedentary teaching model most of the time at school (Steele et al., 2010). Young people starting adolescence generally only spend 5% of the school timetable on moderate to intensive PA and they display very low levels of motor practice during breaks and recesses (Da

Costa et al., 2017). Having reached this point, it is important that teachers know specific didactic proposals to take advantage of the intellectual benefits of the various PA stimuli described, and how academic and motor aspects can be combined to boost learning (Martínez-López et al., 2020). The present work sets out to show the most notable scientific results concerning the PA-intelligence relationship, as well as offering didactic guidance for teachers. Strategies aimed at increasing daily PA and improving students' physical fitness, integrated design of physical education classes, active commuting and active school starts, active breaks and recesses, and the combination of PA and academic sessions are shown.

2. The Peripatetic school was right: From philosophers' habits to current scientific findings regarding physical activity and intelligence

Throughout history PA has been an essential element for human survival and development. As far back as Ancient Greece, it was believed that PA was somehow linked to intellectual ability (Tomporowski et al., 2008). Aristotle (335 BC) used to walk in the garden of the Lycaeum, *the Peripatos*, with his disciples while reflecting. This act of walking is expressed in Greek as *peripatein*. The name of "the Peripatetic school" derived from these two terms and his followers received the unusual name of "the Peripatetics" owing to their habit of philosophising on different subjects while walking. The Peripatetics seem to have believed that in this way their minds reasoned better and that the brain learnt and processed information more quickly when in movement. Soon afterwards, between the first and second centuries AD, the Latin poet Juvenal coined the phrase: "*mens sana in corpore sano*" (Satire X, line 356), associated with the integral relationship between the body and mind, and now used by many neuroscientists to emphasise the importance of movement for the human brain.

In the 18th century, Rousseau (1712-1778) was an afficionado of walking and habitually took long daily walks during which he would contemplate the landscape and think and reflect, in the tranquillity of nature, stating that his inspiration was strengthened in this way. Contemporary and later philosophers also applied the cognitive benefits of movement to their own lives. Kant (1724-1804) walked in the area around his town (Königsberg, now Kaliningrad) every afternoon and on his return home, he would immediately start thinking and writing. As he said, this was the moment in which he felt the greatest cognitive activation and had the best ideas. Shortly afterwards, in the 19th century, Nietzsche claimed that "Only thoughts that come by walking have any value". To seek inspiration and concentration, he used to walk around the mountains, lakes, and waterfalls that surrounded his village in the Alps (Sils Maria).

Recent studies, done in the last two decades, have shown that the Peripatetics were right. Their results show that

PA provides intellectual benefits that are fundamental for attention, concentration, information processing, memory, and learning. The study by Hillman et al. (2009), a pioneer in the field of neuroimaging, showed that cerebral activation in young participants increased after they walked for 20 minutes at 60% intensity, resulting in improved attention and mental processing speed compared with a control group that rested. Other more recent studies also show how doing PA is positively related to emotional intelligence and creativity (Ruiz-Ariza et al., 2019). Therefore, as Aristotle noted, a simple walk at a moderate intensity can lead to an increase in cerebral blood flow and so improve cognitive, emotional, and creative processes (Hillman et al., 2008). The following sections break down the PA-intelligence relationship and offer guidelines and proposals for including it in education.

3. Previous experiments based on encouraging daily physical activity, physical fitness, and evaluating young people's intellectual performance

Previous studies have shown that PA is closely linked to improvements in intellect, especially when done at a moderate or vigorous intensity (MVPA) (Hillman et al., 2008; Tomporowski et al., 2008). The World Health Organization defines physically active young people as those who do at least one hour of MVPA per day every day of the week. However, PA practice has undergone a gradual decline in recent years among young people in Spain, especially among those aged between 12 and 18, who only spend 10% of their time on this type of activity (Vicente-Rodríguez et al., 2016).

Pioneering studies in the 1960s analysed the effects of PA on intelligence measured using IQ. Corder (1966) used the Wechsler intelligence scale to evaluate the effect of a 20 day programme of 60 minutes of PA (bodyweight exercises and running) on children aged between 12 and 16 with mild intellectual disabilities (mean IQ = 66). The PA programme resulted in improvements in the test's overall index and verbal index. Brown (1977) worked with 40 children aged 12 (mean IQ = 35) with a six-week PA programme. The participants in the experimental group were found to have improved their IQ and social maturity afterwards, measured using the Stanford-Binet intelligence test and the Vineland scale, respectively. These improvements are explained by physical exercise causing parallel mental demands, on which the participants focussed, using their memory and the processes of reasoning, and controlling motor movements. Although most studies along these lines show a positive association and effect between PA and intelligence, it is sometimes not possible to determine the intensity of the PA carried out, nor is it clear what methods of instruction were used. Another possible explanation is that IQ tests used only provide overall measurements and might not be sensitive enough to detect specific changes in particular aspects of cognitive functioning caused by PA (Tomporowski et al., 2008).

Another of the principal effects of the systematic practice of PA is to improve the physical fitness of the individual. Although this effect requires a process of physiological adaptation that takes time, there is now a line of research of fairly well-established value that links improved physical level to intellectual maturation (Åberg et al., 2009). Physical fitness consists of cardiorespiratory capacity, speed, muscular strength, and flexibility. In the school setting, these are commonly evaluated using batteries of tests such as ALPHA-Fitness and EUROFIT. Over the last 20 years, many studies have shown that a good level of physical fitness has a positive influence on young people's intellectual abilities (Chaddock-Heyman et al., 2014; Ruiz-Arizaet al., 2017b). For example, Mezcua-Hidalgo et al. (2020) recently found that cardiorespiratory endurance is the physical ability most closely related with the intellect. They found that adolescents who have better cardiorespiratory capacity display higher levels of memory, mathematical calculation, verbal reasoning speed, and creativity, independently of their age, sex, and body mass index. Interestingly, a very representative study with over a million participants showed that the cardiorespiratory capacity attained between the ages of 15 and 18 predicted intelligence when reaching adulthood (Åberg et al., 2009).

Furthermore, other studies have shown a relationship between speed-agility and academic performance in mathematics and language (Esteban-Cornejo et al., 2014; Martínez-López et al., 2018). Haapala (2013) showed that this component is associated with memory, inhibitory control, and attention, and, as a consequence, low levels of speed-agility could hinder intellectual and academic development. The results relating to muscular strength are contradictory. Although some studies have shown a positive relationship between the level of muscular strength and academic performance, others have found that this relationship lost its significance when analysed together with cardiorespiratory capacity and speed-agility (Ruiz-Ariza et al., 2017b). Finally, no positive relationship has been found between different levels of flexibility and intelligence (Ruiz-Ariza et al., 2017b). Strength and flexibility appear not to be strongly related to intellect, and so it is suggested that intervention programmes should mainly focus on cardiorespiratory capacity and speed-agility. With this in mind, the use of intermittent teaching units focussed on improving cardiorespiratory physical fitness (Guijarro-Romero et al., 2019) or the inclusion of high intensity interval programmes at the start of physical education classes is recommended. These programmes should preferably be based on cooperative exercises that include motor skills, coordination, and work on the aerobic component (Martínez-López et al., 2018).

4. Modes of practice of physical activity as a means for cultivating intelligence in the school setting

4.1. The integrated use of physical education classes

The interdisciplinarity demanded by the laws governing education is an ex-

cellent opportunity for teachers to work holistically on different subjects. Indeed according to Ardoy et al. (2014), physical education is an ideal context for integrated cultivation of the body and mind. In recent years, there has been a proliferation in research intended to offer intellectual improvements through specific programmes directed from physical education classes (Costigan et al., 2016). There is ever greater consensus supporting the use of high intensity levels as one of the main variables in the search for physical and intellectual benefits (Ardoy et al., 2014; Ruiz-Ariza et al., 2019). Furthermore, the inclusion of sessions with a high load of cognitive demand has opened the doors to new research proposing the use of hybrid programmes that work on mathematics or language content in combination during practical PA sessions (Schmidt et al., 2015).

In 2014, Ardoy et al. showed that increasing physical education from 2 to 4 classes a week combined with greater intensity produced improvements in cognitive performance. Since these findings, new high intensity interval and cooperative proposals and interventions in physical education have appeared. For example, it has been demonstrated that a 12-week programme based on cooperative PA at an intensity of >85% of maximum heart rate (C-HIIT), during the first 16 minutes of PE classes (changing work-rest ratios from 20-40 seconds to 40-20 seconds in the last two weeks), produces improvements in cognitive performance variables, creativity, and emotional intelligence in adolescents, especially in those who were less physically active (Martínez-López et al., 2018 and Ruiz-Ariza et al., 2019). This programme included the use of observed and centralised wireless heart rate monitoring, projected onto a big screen via Bluetooth (*Seego Realtracksystems*®, Spain). This increased participants' motivation for the programme and they maintained greater interest in the required ranges of intensity. For these researchers, the social character of the cooperative exercises and playful and group decision making, are decisive factors for cognitive activation.

The increase in intellectual performance could partly relate to the improvements in mental well-being that young people achieve, as Costigan et al. (2016) found after a HIIT programme of 3 sessions of 8-10 minutes each per week over 8 weeks, with work-rest ratios of 30:30 seconds. Furthermore, the use of this type of idea allows physical education teachers to dedicate the rest of the class time to working on other content specified in the programmed teaching units. All of this is of interest for education as the inclusion of more hours of physical education and a new focus towards these stimuli would not negatively affect young people's educational performance but could in many cases actually improve it.

4.2. Active commuting to school and physical activity before the school day

For several years a number of researchers have been analysing the importance of PA for intellectual performance

from the start of the day. Accordingly, active commuting to school has appeared as an ideal stimulus for physical and cognitive activation before the school day (Martínez-Gómez et al., 2011; Ruiz-Ariza et al., 2017a). Recently, Ruiz-Ariza et al. (2015) and Domazet et al. (2016) have concluded that active commuting is beneficial for mental well-being and academic performance in mathematics in secondary education. In fact, young people aged 12 and 13 from rural schools who spend between 30 and 60 minutes on active commuting are more likely to achieve high academic performance in language and mathematics (García-Hermoso et al., 2017). Furthermore, it seems that girls who do more active journeys of more than 15 minutes per week have better academic performance in mathematics and better general academic performance while for boys, there was no significant association (Ruiz-Ariza et al., 2017a).

Starting the school day with a stimulus of 16 minutes of C-HIIT has an immediate effect on attention and concentration in the two hours immediately afterwards (Mezcua-Hidalgo et al., 2019). According to García-Hermoso et al. (2020), children aged between 8 and 10 experience significant improvements in attention, concentration, and performance in mathematics when the school day starts with 30 minutes of recreational coordination and decision-making games involving concentration (Active-Start Programme). Therefore, implementing PA programmes before school, such as C-HIIT or Active-Start, can improve cardio-respiratory capacity and in parallel benefit attention-concentration capacity and academic success among schoolchildren.

4.3. Active breaks and recesses during the school day

Recent findings in neuroscience have shown that prolonged sedentary classes have a significant negative impact on students' academic performance (Martínez-López et al., 2020). Active breaks are a strategy that splits up the sedentary passage of the classes and contributes to the intellectual activation of young people (Mavilidi et al., 2020). Some studies have shown that a 5-10 minute PA session during the break between classes or pauses during the classes themselves produces improvements in students' mental response and reduces the time needed for successful completion of tasks (Howie et al., 2014). There is a consensus that when students display fatigue or slowness in class, they are showing symptoms of the need for an active break. Donnelly et al. (2017) found an improvement in intellectual skills after the TAKE 10! programme (10 min. × 2 time/day × 5 days/week). Using a similar programme, Mullender-Wijnsma et al. (2016) also observed improvements, but in more specific aspects of mathematics. It has also been shown that an active break of 15 minutes, as well as proposals with 2-3 breaks with active videogames, of 10 minutes each, are highly beneficial for selective attention (Van den Berg et al., 2019). However, for some researchers, active breaks of 4 minutes at a moderate or high intensity would be

sufficient to improve aspects such as memory, attention, concentration, or mathematical calculation (Ma et al., 2014). Including active breaks in the school day is therefore suggested in order to obtain benefits in intellectual variables that are very important for young people's learning and integrated development. Stimuli of 4 minutes (*FUNtervals* of 20 seconds at a high intensity + 10 seconds of rest, repeated eight times), or other programmes such as TAKE10! would be recommended.

But the main active break during the school day should be integrated into the recess. Active recesses are based on activation of the recess time using specific PA programmes. Altenburg et al. (2015) suggest that 15-20 minutes of PA at a moderate to vigorous intensity in every recess during the week is enough to improve the executive functions and the selective attention of children aged 8 to 13. This research group also found that having 2 active recesses of 20 minutes during the school day produces greater intellectual improvements than only having one. Although there is a growing body of evidence, there are still few interventions focussed on including two recess sessions during the school day.

Ultimately, moderate-high intensity active breaks and recesses with a recreational basis can be key to increasing the number of physically active young people and better intellectual performance. According to Drummy et al. (2016), active breaks can increase the amount of PA during the school day by 9.5 minutes. It has also been shown that the greatest improvements in intellectual and academic aspects are obtained by combining active rests with tasks that entail cognitive engagement (Mavilidi et al., 2019). Based on this, schools should include at least one active rest of 4 minutes at a high intensity and one or two active breaks of 15-20 minutes in the school day. In addition, physically active academic sessions, carried out regularly, could also be the ideal stimulus for boosting intelligence in the educational setting (Mavilidi et al., 2015).

4.4. Physically active lessons

Physically active lessons comprise the integration of active games or tasks that involve movement in class at the same time as working on specific content. Mavilidi et al. (2015) found that vocabulary acquisition in a foreign language improved when learning was done through integrated active games. Reed et al. (2010) incorporated 30 minutes of PA into mathematics, language, and science classes (3 days/week for 3 months), finding improvements in intellectual fluidity. Two other international programmes, the F&V programme (PA for 10-15 min × 3 days/week) (Mullender-Wijnsma et al., 2015, 2016) and the TEXAS-I CAN!® programme (10-15 min × 5 days/week) (Bartholomew et al., 2018) found positive effects in academic performance from the fourth week of intervention.

A recent systematic review by Martínez-López et al. (2020) reported that the majority of the studies that used physically active academic sessions to improve

intellectual aspects related to intellectual fluidity, executive functions, or literacy obtained positive results. The results of other interventions, however, were not as consistent (Donnelly et al., 2017; Mavilidi et al., 2018; Mullender-Wijnsma et al., 2016). In general, programmes involving fine motor movements had greater cognitive effects than the gross motor programmes (Martínez-López et al., 2020). For example, in schoolchildren aged 6 to 12, using physically active lessons of 15 minutes' duration in which participants make different geometric shapes with their bodies while walking or jumping outdoors improves their intellectual abilities relating to mathematics and spatial perception (Donnelly & Lambourne, 2011). Mavilidi et al. (2015, 2018) carried out a set of studies in which they encouraged children to do different situations based on active learning. Children had to count numbers while jumping or walking along a path of numbers set out on the floor, dance while learning different words, imitate the movements of the animals that live in each continent while learning about the animals and their homes, or do journeys from the Sun to Mercury and repeat the process until they have passed through all of the planets, while learning their names and their distance from the Sun. These children generally scored higher on cognitive tests, were more active, and enjoyed the teaching-learning process more than their peers who were taught in traditional ways. These findings could also be adapted to secondary education and, at least at some moments, this resource could be integrated by activating the content of any subject.

5. Scientific-educational arguments that support the use of physical activity stimuli to cultivate intelligence

Numerous researchers have set out potential reasons why the different educational stimuli in PA shown above can have a significant influence on young people's intelligence. It seems that an increase in PA or in the level of physical fitness, especially cardiorespiratory fitness, promotes the buildup of d-β-hydroxybutyrate in the hippocampus or the expression of the Fndc5 gene through the PGC1-α/ERR-α, transcriptional complex which lead to an increase in BDNF, which is key for intellectual capacity and cerebral plasticity (Sleiman et al., 2016). Doing PA and having increased physical fitness also improve the microstructure of the brain's white matter, increasing the efficiency of intellectual activity (Chaddock-Heyman et al., 2014). Furthermore, systematic PA practice promotes angiogenesis, neurogenesis, and synaptogenesis, which are phenomena that improve capillary density, cerebral vascularisation, the number of neurones, and the quality of synaptic connections, affecting the intellect (Adkins et al., 2006; Ruiz-Ariza et al., 2017b). Esteban-Cornejo et al. (2014) and Haapala (2013) reported that biological maturity can also shape the PA-intelligence relationship as young people with a higher level of maturity might have a more developed neuromuscular system, and so in parallel could achieve better scores in physical and intelligence tests. In the 1980s, Goldstein (1987) found that adolescents with a more mature skeleton had greater intellectual performance in comparison with those who displayed less

skeletal maturity. It appears that improvements in speed-agility capacity could benefit the neuromotor system and influence preactivation of the neocerebellum and the prefrontal cortex, leading to better cerebral processing and better intellectual abilities (Haapala et al., 2013). In addition, more practice of PA and participation in sporting activities reduces stress and anxiety at the same time as increasing self-esteem. This is because levels of serotonin, noradrenaline, and endorphins favour positive emotional sensations, improving behaviour in class and interest in learning (Ruiz-Ariza et al., 2019).

With regards to PA work integrated with academic-cognitive content, Schmidt et al. (2015) and Mavilidi et al. (2018) agree that information processes are shared at a motor and intellectual level and that parallel work could boost intellectual performance to a large extent. For example, running to a place where there are various cards with disordered letters and then creating the longest word possible when you arrive requires thinking, reasoning, discrimination between different visual stimuli, and choosing the most appropriate decision. This integrated activity would then activate participants physically and intellectually with the benefits this entails. Furthermore, the process of learning through bodily movement might make a decisive contribution to transforming abstract information into concrete and tangible concepts for schoolchildren (Mavilidi et al., 2019).

In addition, the significant effect of physical-cognitive interventions could mainly be explained by theories of cognitive load or embodied cognition (Schmidt et al., 2019). Embodied cognition can be defined as bodily movements and positions that derive from the body's interactions with its environment and make it possible to process incoming information simultaneously through different systems (Schmidt et al., 2019). In this respect, it is argued that incorporating learning about motor actions helps with constructing higher quality mental representations, thus facilitating memory and learning (Madan & Singhal, 2012). The theory of cognitive load which, at a biological level, categorises the acquisition of information as primary and secondary, complements embodied cognition (Paas & Sweller, 2012). Biologically primary knowledge evolves naturally without explicit instruction, for example mother tongue acquisition or the use of unconscious movements. Biologically secondary knowledge is generally learnt through explicit instruction during formal education (for example, mathematics or sciences). Primary knowledge can be used to support the learning of complex secondary knowledge tasks (Mavilidi et al., 2018). Research into cognitive load has shown that certain semantic aspects are activated during specific motor tasks, thus demonstrating the relationship between sensorimotor mechanisms and intellectual processes (Mavilidi et al., 2018).

6. Final practical reflections and conclusion

This work has set out to analyse the effects of and associations between the

different types of PA practice, principally at school, on intellectual response in children and adolescents. Research that has implemented specific PA programmes at moments such as arrival at school, the start of the school day, breaks between classes and recess, as well as the use of PA integrated into ordinary class sessions, has mainly shown a positive effect on the intellectual capacities of children and adolescents that could make a significant contribution to improving their learning. Putting into practice programmes to promote daily PA that include 25 minutes or more of active commuting to school and/or active school starts, the inclusion of at least some active breaks of 4-5 minutes, sessions of between 30-45 minutes of physically active integrated academic classes, for two or three days a week, as well as the use of active recesses is suggested. Establishing long-term programmes that stimulate PA outside school and improve physical fitness levels would be ideal to boost cognitive-academic benefits further. To this end, cooperative work between families, schools, and teachers is key within this educational process. Physical education teachers can provide integrated coordination and guidance for these interventions.

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Book reviews

Gairín Sallán, J., & Rodríguez-Gómez, D. (Eds.). (2020).
Aprendizaje organizativo e informal en los centros educativos [Organisational and informal learning in educational centres] (María del Mar Duran Bellonch).

Santos Rego, M. A., Valle Arias, A., & Lorenzo Moledo, M. (Eds.). (2019).
Éxito Educativo. Claves de construcción y desarrollo [Educational success: keys for building and developing it] (Anaïs Quiroga Carrillo).

Sarramona, J. (2020).
La enseñanza no presencial en la educación básica. Guía práctica para maestros y profesores [Distance teaching in elementary education: a practical guide for teachers] (Antonio J. Colom Cañellas).

Book reviews

Gairín Sallán, J., & Rodríguez-Gómez, D. (Eds.). (2020).
Aprendizaje organizativo e informal en los centros educativos [Organisational and informal learning in educational centres]. Pirámide. 162 pp.

Although much has been written about organisations that learn and there are numerous theoretical approaches to this topic, there are still few works that specifically consider it in the case of educational organisations. The book that interests us here helps remedy this shortcoming. Informal learning processes that result in the transformation of organisations are currently present in the field of education, although they are not sufficiently widespread. Another problem with this topic is the difficulty of understanding some of the concepts used in it: is an organisation that learns the same thing as organisational learning?; what do learning processes have to do with managing knowledge? are they the same or do they differ?; has the latter been abandoned in favour of the former?; who really learns? the professional who is employed, the group, or the organisation?; is speaking about organisations that learn not ultimately a word game? The authors of this work consider these and other questions and offer their own answers clearly and simply, something that is welcome when covering topics that at first sight might not appear to be very practical. Nothing, however, could be further from the truth. The day to day life of educational organisations is shaped by many of the processes that are explained and analysed in this book. Apart from bringing the reader into contact with this reality, the work provides numerous strategies to be put into practice, which are devised to support people who set out to accept change as one of the main driving forces of their organisation.

Some of the work's main theses and an overview of its structure are provided below.

If the members of an organisation learn and this learning then has an impact on the organisation, we can state that the

organisation learns. This is the starting position of the editors of this work. Organisational learning is understood as a process in which: errors are detected and corrected; organisational knowledge is shared and developed; actions in the organisation are improved; ideas, processes, and mental models are exchanged; competences are acquired collectively by the members of the organisation; changes are made to structures of cognition; and where transformation of the organisation is pursued to achieve efficacy and quality (p. 39).

In addition, the editors of this work note that members learn in a variety of ways, with the ones known as "informal" being of most interest to them. In very broad terms, it could be said that informal learning is regarded in this work as the type that is not organised in syllabuses or restricted to specific contexts. It is a self-directed learning in which professionals decide what, how, where, and when to learn and which resources to use based on their everyday professional needs or interests p. 42.

At a time when business organisations are putting all their weight behind encouraging informal learning, treating it as the strategic cornerstone of their policy, educational organisations cannot and should not be neglected. Fortunately, many educational centres have started processes of change that are deliberately aimed at improvement and based on informal learning by their staff.

The work that concerns us here has eight chapters, and we believe it could be divided into three sections, although it is not. The first section comprises chapters one and two. In them, the editors of this work, Gairín and Rodríguez-Gómez, lay the conceptual foundations for change, improvement, innovation, development of organisational learning, and informal learning. In the first chapter they examine, from a critical perspective, the current situation of innovation in educational centres. In chapter two, they lay the theoretical foundations for the possibility of organisational learning based on informal learning, through knowledge management processes. Furthermore, ideas for promoting informal learning are set out, such as research-action, coaching and peer-coaching, and feedback 390, among others.

What could be treated as the second section comprises three chapters, each dedicated to an intrinsic part of the process of organisational change. Chapter three considers the design of the process of change, providing ideas for how to choose a particular planning model, how to set the boundaries of the needs for change, and how to guarantee the right dynamic during its execution.

Chapter four develops the process of implementing change, starting with an analysis of this process that makes it possible to detect the main errors often committed in it, with the authors making suggestions on how to confront, minimise, or eliminate each of them. The chapter also ends with practical advice on how to reduce resistance to change, which is impossible to ignore and, in this case, eliminate fully.

Chapter five sets out the advantages of evaluation in any process of change. It then specifies key actions for this evaluation and also for institutionalising the change that is achieved. In fact, the authors consider that without this last stage in the process, it is not truly possible to speak of organisational learning. The chapter concludes with particularly interesting ideas for maintaining an organisational culture aimed at innovation through sustainable change. To achieve this, participatory processes are especially important.

Finally, what could be regarded as a third section examines in depth the means or tools that make driving change, developing it, and integrating it into the organisation possible and facilitate these processes. Chapter six introduces social media, serious games, and gamification as an illuminating conceptual approach. It then sets out how these tools can be applied appropriately in the field of education, specifically for fostering teachers' learning in applications and services for accessing and processing information; for communication, interaction, and training on line. The chapter ends with a full summary of the current position of the use of technology by teachers.

Chapter seven provides a detailed description of various experiences in the use of technology, in this case for professional development and cooperative work in the field of education. The section on WhatsApp for teachers is especially interesting. This chapter also sets out best practices from a number of organisations from which we can learn, such as the Social Services Area of Barcelona Council, the Institute of Public Safety of Catalonia, and the Universitat Politècnica de Catalunya, among others.

Finally, the last chapter is dedicated to what is most important in the first and last instance in any learning process: the person. The editors of the work develop topics that are of interest, such as the role of people as knowledge promoters and the professional, institutional, and ethical challenges that must be confronted: what will be the practical and theoretical agenda for organisational development in coming years?; if the person makes organisational learning possible on the basis of individual learning, then what relationship must be established between the person and the educational organisation?; how can personal ethics be combined with organisational ethics? The authors offer tentative answers for these and other interesting questions, which will undoubtedly inspire readers to action starting from a good theoretical basis.

María del Mar Duran Bellonch ■

Santos Rego, M. A., Valle Arias, A., & Lorenzo Moledo, M. (Eds.). (2019).

Éxito Educativo. Claves de construcción y desarrollo [Educational success: keys for building and developing it].
Tirant Humanidades. 318 pp.

The contemporary knowledge society has posed new academic challenges for students and teachers alike in recent years. Educational success currently goes

beyond qualifications and social acknowledgement, as it encourages moral and material growth, personal self-confidence, and confidence in the people who help learners in the process. Clearly we mean teachers. These professionals have the task of accompanying students and providing the knowledge, affection, and support they need to overcome the difficulties they inevitably encounter on the winding path of learning.

In the words of the editors of this work, educational success can be understood as the capacity we acquire to *self-propel* our will, associated with the cognitive regulation of learning, enabling feedback for personal internal motivation and epistemic curiosity for learning. This phenomenon is also imbued with personal learning experiences and their cognitive and/or emotional impacts, which undoubtedly determine the acquisition of the keys for building and developing success.

This success, requires knowing how to manage the errors and mistakes that occur throughout the academic journey. And the fact is that learning how to manage failure is part of the process, another step that allows better progress. This undoubtedly does not neglect the individual energy and effort that combine with pedagogical intervention to make it possible for learning to be a successful motivation.

And this topic cannot be approached without analysing all of the factors that have an influence on educational success from a critical perspective. Academic attainment cannot be understood as a way certifying the acquisition of knowledge or certain skills. From a pedagogical perspective, it must involve a subsequent aim, totally separate from market assumptions, as a value that catalyses knowledge and fosters civic-moral development and so in some way has an effect on the community.

On the other hand, this phenomenon cannot escape from the scientific sphere — nor should it — and this is why this work attempts to offer an approach to a concept as complex as educational success, in all of its aspects and conditions for opportunity. Researchers with notable academic careers from all over Spain have come together to follow a common path, undoubtedly offering a variety of theoretical approaches that are essential for a correct understanding of educational success.

Their joint efforts have taken shape in the book *Éxito Educativo. Claves de construcción y desarrollo*, a work of careful analysis by the authors who, over fourteen chapters split into three different sections, consider in depth the principal questions that have inspired the most interest in the field that concerns us.

The first chapter analyses the construct of motivation and how its interaction with students' cognition influences learning and academic performance. It considers the effect of self-referenced beliefs, students' personal interests, and the relevance of the utility attributed to academic work. The authors also consider the role of achievement goal orientation,

concluding with the importance of action monitoring strategies.

Chapter two covers the contentious debate surrounding homework, providing arguments for and against setting it. It considers in depth the variables involved in doing homework, such as motivation, volume of homework, time spent on it, and the teacher's and family's involvement, concluding with various recommendations for educational practice.

Chapter three is dedicated to students with lower performance than expected, a topic that is considered in the English-speaking sphere in particular. Specifically, it considers relevant questions for identifying and evaluating these students, the characteristics that define them, and the key tools for reversing failure among them.

Chapter four alludes to study strategies for improving learning, most notably the construction of summaries or figures, generating ideas and developing mental images. The authors go on to describe mechanisms for supervision of an adequate retention of what is studied, existing evidence regarding time management, and the importance of seeking help in this process.

The first part of the book ends with chapter five, which considers the role of emotional intelligence in educational success. To this end, it offers an approximation to the term emotion, focussing on how this permeates individuals' life experiences and exploring its influence on the development of intelligence.

Chapter six considers the necessary change of methodological paradigm that must occur in classrooms in order to include a series of active methods, based on imagination and creativity, and foster students' success. Some examples of these are project-based learning, group techniques, collaborative techniques, dramatisation, and service-learning.

Chapter seven considers the important contributions neuroscience has made to the field of education, most notably in physical exercise, arts, and positive emotions, which act as powerful learning facilitators. Its argument then focuses on the principal challenges the contemporary school must face, especially in methodological terms.

Chapter eight, on new technologies, describes the technological innovations that have recently entered the educational setting, such as e-learning 2.0, the flipped classroom, and MOOC courses. The authors also mention internationally applied models for integrating these methods into pedagogical practice and make suggestions for a more flexible, open, and personalised educational proposal.

The second part of the book ends with chapter nine, which is dedicated to the process of guidance as a fundamental pillar of educational success. In it, the main areas of guidance actions are considered as well as the moments of academic transition to which this should be adapted.

Chapter ten considers the concept of school adjustment, which encompasses

the attitudinal, behavioural, and cognitive aspects needed to assimilate content and adapt to the school setting, which principally depend on academic performance, social relations, and satisfaction with school. It also examines the influence of the family, family/school communication, and the involvement of the community on academic achievement.

Chapter 11 covers the educational management of cultural diversity. The authors first consider the concept of educational success, examining how it differs from school success and then moving on to the chapter's main debate. To this end, they refer to the intercultural education model, which is vital for achieving success in students from migrant backgrounds, and they discuss some of the successful results of a recent intervention programme carried out with these boys and girls, the ECO-FA-SE programme.

Chapter 12 covers measures in educational and employment policy aimed at ensuring the inclusion and employability of young people who are at risk. Specifically, it sets out the functioning of Spain's Social Guarantee Programmes and Basic Professional Training, insofar as they encourage the educational success of young people whose initial situation was marked by failures and problems with learning.

Chapter 13, on lexical competence and academic success, analyses the extent to which intelligence tests evaluate verbal comprehension and how this is worked on in the environment which, in the view of the authors, is most decisive: the school.

The last chapter considers mathematical competences. It describes early mathematical skills, models for developing number sense, and the learning difficulties that can occur in this field from a psycho-evolutionary perspective. It then proposes specific tasks and standardised tests for measuring mathematical competence and some of the most successful programmes for learning it.

In conclusion, this is a comprehensive multidisciplinary work with a harmonious structure that can be read as a whole or focussing on specific selected parts, in which the reader can find the most important aspects that academic literature has revealed regarding sustained success through education.

Anaïs Quiroga Carrillo ■

Sarramona, J. (2020).

La enseñanza no presencial en la educación básica. Guía práctica para maestros y profesores [Distance teaching in elementary education: A practical guide for teachers].
Horsori. 92 pp.

This new book by Jaume Sarramona is, in our opinion, well worth reviewing because, more than ever, we believe that it merits a discussion to make known certain aspects that, as well as being noteworthy, seem important to us as they have had a bearing on the development of educa-

tion in Spain in recent years, a process in which Professor Sarramona has, to a large extent, been a leading figure.

We say this because in 1975, Sarramona published no fewer than three books; one with the Teide publishing house called *Cogestión en la escuela* [Co-management at school], and two others which now, after many years, can be seen to be important milestones for our most recent times; namely, *La enseñanza a distancia. Posibilidades y desarrollo actual* [Distance learning: possibilities and current development] and *Tecnología de la enseñanza a distancia* [Distance learning technology], both published by CEAC. As a result, Spain progressed, coming up to date with what was already an established reality in the English-speaking world.

These titles were not examples of mere snobbishness or of being *avant la lettre*, although he was ahead of his time, but instead they soon had a practical expression as our colleague was involved at the forefront of the design of the UNED, Spain's distance education university. However, no trace is now left of the good work from that period and his valuable proposals. Costa Rica and other Latin American countries also benefitted from his collaboration to establish their respective distance education universities.

This is not, therefore, a new author or an opportunistic book, rather quite the contrary. The *distance learning* we now have the pleasure of presenting is the culmination of the long career of someone who was a pioneer in these questions and, given the situation in which we currently find ourselves, it arrives as a useful and above all necessary instrument for our schools. And also because I believe that new generations not only lack historical knowledge, which is perhaps forgivable (I have my doubts), but also the very culture of the environment in which they work.

In the midst of a pandemic, Professor Sarramona has written a book that is not just exemplary — he has many more of these than the current crop of academics — but necessary, tremendously necessary and useful. In the current difficult circumstances, this book is a tool — a vital one, I would say — for enabling our children to do their courses with complete security in both the health and cultural spheres alike.

Sarramona has undoubtedly provided a useful and necessary tool to help solve the issue of classes in which students are not physically present, and fundamentally to help teachers with questions related to the act of teaching. The author provides an exemplary response to both of these circumstances because he develops aspects such as planning for distance teaching — a basic element that should form part of any teacher's professional skills — that is to say, setting clear objectives, doing relevant exercises, ensuring students work in groups and individually, promoting the necessary didactic resources for this type of teaching, and essentially connecting didactic activities to the objectives previously set. What Fernández Huerta called *congruence* between teaching and learning. (*Nota bene*: Professor Fernández Huerta was Chair of Educa-

tion at the Universidad de Barcelona. He was a great statistician and he introduced educational technology and programmed learning to Spain.)

As well as what is mentioned above, the author dedicates a chapter each to the most difficult questions relating to distance teaching, which have been the target of many tirades in recent months, namely, how to assess, how to motivate, and fundamentally, how to tutor students, in other words, how to help them, how to direct them, how to make the necessary guidance possible so that they feel secure in their activities and know that what they are doing is not just valuable but also that this value is guaranteed by their teacher.

In short, this is a book for this very moment, that all teachers should be familiar with, in particular so that they can apply its proposals. Indeed, it is packed with examples of practical activities and attitudes, with suggestions, synopses, and that which is the ultimate purpose of pedagogy; namely, it focusses on *how to do it*. This is undoubtedly the ideal book for use in primary education and teaching degrees.

It is, therefore, an illuminating example taken to its maximum expression of what the theory of education is, or at least what it should be, and which I hope (and this hope is, it seems to me, plural) will focus on being theory for action, or to put it another way theory for improving educational practice, and so solving problems in class. Values yes, and also morality — what would become of pedagogy without them? — but theory's *raison d'être* is undoubtedly that it improves practical pedagogy and resolves educational problems. Those problems that are so far from the university, but which primary school teachers face every day in class.

Sarramona's new book is an excellent example of all of this. And please read it, even if you are not of his generation. You will learn from it and perhaps, if you do not have mental or other objections, it might affect what you think the theory of education is and should be, namely, solving problems and helping those who do not know, more or less as Monsignor Tusquests taught us. (Another forgotten Professor of Pedagogy, who with his *Pedagogía de la problematicidad* [Pedagogy of problematics] could still as my colleague and friend the novelist Camilo J. Cela said, help many people lose their simplicity.)

Antonio J. Colom Cañellas ■