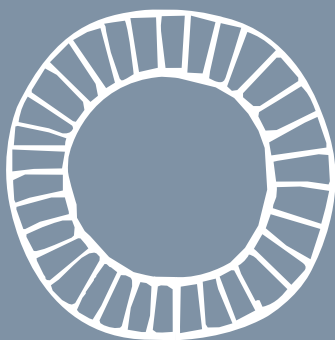


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# Studies

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# Performance in science, epistemic conceptions, and STEM vocations in Spain's autonomous communities: evidence from PISA 2015, improvement policies, and practices

## Rendimiento en ciencias, concepciones epistémicas y vocaciones STEM en las comunidades autónomas españolas. Evidencias desde PISA 2015, políticas y prácticas de mejora

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### Abstract:

Knowledge plays a vital role as the key to long-term economic development, at both the national and regional levels. Furthermore, the new circumstances require the exercise of mature citizenship at an intellectual level and responsible citizenship in the political sphere. By its very nature, science education can make a decisive contribution towards achieving the

two goals of economic development and civic progress. From this dual perspective, this work analyses the data from PISA 2015. Its aim is to provide an empirical analysis of the relative positions of the 17 Spanish autonomous communities in terms of science education. It focuses on three main variables and how they are related: students' performance in science, their epistemic conceptions, and their STEM

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vocations. A number of recommendations for improvement policies and practices relating to this evidence are made.

**Keywords:** PISA 2015, science education, Spanish autonomous communities, regional economic development, civic progress, improvement policies.

## Resumen:

El conocimiento desempeña un papel determinante como clave para el desarrollo económico a largo plazo, tanto en el ámbito de los estados como de sus regiones. Además, el nuevo contexto demanda el ejercicio de una ciudadanía madura en el plano intelectual y responsable en el plano político. Por su propia naturaleza, la educación científica puede contribuir decisivamente al

logro de estos dos tipos de metas, de desarrollo económico y de progreso cívico. Desde esta doble perspectiva, el presente trabajo efectúa análisis secundarios sobre la base de datos de PISA 2015. Se pretende generar con ellos un diagnóstico empírico de la situación relativa de las 17 comunidades autónomas en materia de educación científica. Se ha centrado la atención en tres variables principales: el rendimiento en ciencias, las concepciones epistémicas de los alumnos y sus vocaciones STEM. En relación con tales evidencias, se formulan algunas recomendaciones sobre políticas y prácticas de mejora.

**Descriptor:** PISA 2015, educación científica, comunidades autónomas, desarrollo económico regional, progreso cívico, políticas de mejora.

## 1. Introduction

Education and training systems have become potentially effective instruments for adapting economies and societies to a complex setting. As a result of the many factors involved and how they interact, non-linear dynamics have been created that accelerate historical time (López Rupérez, 2001).

There is a broad consensus, based on everyday evidence, that the development of science and technology is one of the driving forces behind these rapid process-

es of change. Klaus Schwab has described the new outlook as follows:

Unprecedented and simultaneous advances in artificial intelligence (AI), robotics, the internet of things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage, quantum computing and others are redefining industries, blurring traditional boundaries, and creating new opportunities. We have dubbed this the fourth industrial revolution, and it is fundamentally changing the way we live, work and relate to one another (Schwab, 2016, p. 1).

This overview of the development of the context clearly underlines the significant interrelationship between technology, economy, and society that characterises this setting.

The most recent studies on teaching and learning focus on cognitive and non-cognitive skills as essential curriculum elements. Cognitive skills include critical thinking skills, problem solving skills, and skills for building and evaluating arguments based on evidence, etc. (NRC, 2012). Non-cognitive skills include perseverance, determination, resilience, self-control, and so on (US Department of Education, 2013; Méndez et al., 2015). As Kautz, Heckman, Diris, Weel, and Borghans (2014) have noted, regarding non-cognitive skills, their predictive power rivals that of cognitive skills in a broad range of results throughout life, including school achievement. In particular,

conscientiousness—the tendency to be organised, responsible, and hardworking—is the most widely predictive across a variety of outcomes (see Almlund et al., 2011; Borghans et al., 2008; Heckman & Kautz, 2012; Roberts et al., 2007). This ability predicts the number of years of schooling with the same strength as intelligence measurements (Almlund et al., 2011) (Kautz et al, 2015, p. 23).

This OECD working paper notes that:

Because both cognitive and non-cognitive skills can be shaped and changed over the life cycle, they are properly called skills. An older terminology in psychology refers to them as “traits”, conveying

a sense of immutability or permanence, possibly due to their heritable nature. The distinction between skills and traits is not just a matter of semantics. It suggests new and productive avenues for public policy (Kautz et al., 2014, p. 10).

In effect, and in line with the evidence, skills can change with age and especially as a result of instruction, and so both factors must be considered in school education (López Rupérez & García García, 2017).

Another concept which is consolidating itself, hand-in-hand with advances in the cognitive sciences, is “deep learning”. Cognitive scientists have underlined the importance of deep conceptual comprehension in learning, having found that children retain knowledge better and can apply it in different contexts if they have a *deep knowledge* rather than a *superficial knowledge* (Sawyer, 2008). As the US National Research Council noted in the work cited above,

the product of deeper learning is transferable knowledge, including content knowledge in a domain and knowledge of how, why, and when to apply this knowledge to answer questions and solve problems (NRC, 2012, pp. 5-6).

Science education is an important area for developing the skills and competences required by the society and economy of the 21st century. The semantic richness of its conceptual frameworks; the variety of types of knowledge it covers; the power of the concepts it transfers, which is often linked to the degree of abstraction and high level of commonality; the natural occurrence of cooper-

ative learning situations associated with the research methodology itself; the development of personal discipline, perseverance, and a sense of effort linked to the cognitive or intellectual demands of its theoretical frameworks; its humanistic background linked to philosophical reflection and its historical evolution, are some of the features that make it a privileged area for acquiring the cognitive and non-cognitive skills required of the student.

Indeed STEM teaching (Science, Technology, Engineering, Mathematics) is an extension of the earlier area of reflection regarding the present and future importance of science education. Thanks to its impact on the economy and employment (WEF, 2016), it has attracted the attention of European institutions (Council of the European Union, 2009; EU STEM Coalition, 2015), and also because the corresponding competences are part of the necessary civic baggage that will enable citizens of the 21st century to participate actively in processes and decisions that will fully affect their lives (European Commission, 2015).

In the face of this complex panorama, the development of science education is a basic element in the potential for economic and social development of Spain's autonomous communities. As noted in the IVIE-Fundación BBVA report on "*La competitividad de las regiones españolas ante la Economía del Conocimiento* (The competitiveness of the Spanish regions in the knowledge economy)":

A growing consensus in Spanish society has emerged regarding the need to modify the features of this model of regional growth to consolidate it on more solid foundations that guarantee an ongoing increase in productivity and, consequently, access to higher levels of social well-being. The idea that attempts to summarise the features of this new model is that it should be inspired by the so-called knowledge economy (Reig Martínez et al., 2016, p. 7).

And, as the authors emphasise further on, citing a variety of sources with a solid empirical base, knowledge has a vital role as the key to long-term economic development.

The 2015 PISA report has opened an unprecedented window of opportunity for Spain by recording the participation of the 17 autonomous communities with a broad and statistically representative sample of the population at a regional level for the first time in the history of this international evaluation programme. This makes it possible to evaluate students' real level of knowledge and competences, in this case in the particular field of science education. The fact that this evaluation takes place in the framework of compulsory education makes it possible to reflect on the extent to which the general population has acquired basic competences and the predictive power of this, in comparative terms, for likely future economic and social development.

This study provides a systematic description of the Spanish autonomous communities with regards to students' performance in science, epistemic

conceptions<sup>1</sup>, and STEM vocations, based on the PISA 2015 data. This makes it possible to perform a comparative analysis with the help of linear regression analysis, and then to formulate reflections and suggestions regarding policies and practices aimed at improving scientific teaching and learning.

## 2. Methodological framework

### 2.1. Sample

The samples used correspond with the 17 autonomous regions as data clusters and also with the micro-data —relating to students— from each community that refer to other statistically representative expanded samples of the respective populations of 15-year-old school pupils.

A total of 39,066 Spanish students participated in the PISA 2015 survey. The representative sample for Spain comprises 6,736 students. The sample sizes for each of the autonomous regions, along with the percentages for the corresponding populations, are shown in Table 1 (in the analyses presented, the weighting established for international comparison is used in relation to the representative sample of the Spanish population and for each of the autonomous regions).

### 2.2. Measurement instruments

The measurement instruments used are the ones that enabled the 2015 edition of PISA to obtain the data, some of the secondary analyses of which will be the object of this study: the science

TABLE 1. Size of the samples of students from each of Spain's 17 autonomous communities and their populations as percentages.

|                      | N     | %     |
|----------------------|-------|-------|
| Andalusia            | 1,813 | 4.6 % |
| Aragon               | 1,798 | 4.6 % |
| Asturias             | 1,790 | 4.6 % |
| Balearic Islands     | 1,797 | 4.6 % |
| Canary Islands       | 1,842 | 4.7 % |
| Cantabria            | 1,924 | 4.9 % |
| Castile and Leon     | 1,858 | 4.8 % |
| Castile-La Mancha    | 1,889 | 4.8 % |
| Catalonia            | 1,769 | 4.5 % |
| Comunidad Valenciana | 1,625 | 4.2 % |
| Extremadura          | 1,809 | 4.6 % |
| Galicia              | 1,865 | 4.8 % |
| La Rioja             | 1,461 | 3.7 % |
| Madrid               | 1,808 | 4.6 % |
| Murcia               | 1,796 | 4.6 % |
| Navarre              | 1,874 | 4.8 % |
| Basque Country       | 3,612 | 9.2 % |

Source: Own elaboration based on data from PISA, 2015.

surveys and the personal context questionnaires, in particular the one referring to students' expectations of having a science-related career in future (when they are 30).

### 2.2.1. The tests

The complete structure of the properly cognitive area of the PISA 2015 science surveys is available in the report by the OECD and is summarised in Graph 1.

GRAPH 1. Descriptive categories of the PISA 2015 evaluation elements in the field of science.

|                                                                                                                         |                                                                                                                                                                       |                                                                                                                                                                                                                           |                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>CONTEXT</b> <ul style="list-style-type: none"> <li>– Personal</li> <li>– Local/national</li> <li>– Global</li> </ul> | <b>KNOWLEDGE TYPE</b> <ul style="list-style-type: none"> <li>– Content</li> <li>– Procedural</li> <li>– Epistemic</li> </ul>                                          | <b>CONTENT AREA</b> <ul style="list-style-type: none"> <li>– Physical systems</li> <li>– Living systems</li> <li>– Earth and space systems</li> </ul>                                                                     | <b>COGNITIVE DEMAND</b> <ul style="list-style-type: none"> <li>– Low</li> <li>– Medium</li> <li>– High</li> </ul> |
|                                                                                                                         | <b>TYPE OF RESPONSE</b> <ul style="list-style-type: none"> <li>– Simple multiple choice</li> <li>– Complex multiple choice</li> <li>– Constructed response</li> </ul> | <b>SCIENTIFIC COMPETENCE</b> <ul style="list-style-type: none"> <li>– Explain phenomena scientifically</li> <li>– Evaluate and design scientific enquiry</li> <li>– Interpret data and evidence scientifically</li> </ul> |                                                                                                                   |

Source: Own elaboration based on OECD, 2016a.

The basic structure of the science survey is presented below with the help of descriptive Tables 2 and 3 which have been drawn up by the authors through direct processing of the information contained in tables C2.1 and C2.2 (OECD, 2016a)<sup>2</sup>. These tables clarify the complex distribu-

tion of the set of items in the different subscales.

Table 2 presents the distribution of all of the items in the three categories or subscales: namely, types of scientific knowledge, scientific competences, and content areas.

TABLE 2. Distribution of all items in the three categories or subscales: types of scientific knowledge, scientific competences, and content areas.

| Competence                                 | Type of knowledge |        |            |        |           |        |       |        |
|--------------------------------------------|-------------------|--------|------------|--------|-----------|--------|-------|--------|
| Content areas                              | Content           |        | Procedural |        | Epistemic |        | Total |        |
| Explain phenomena scientifically           | 83                | 84.7%  | 4          | 6.7%   | 2         | 7.7%   | 89    | 48.4%  |
| Physical                                   | 34                | 41.0%  | 1          | 25.0%  |           | 0.0%   | 35    | 39.3%  |
| Living                                     | 30                | 36.1%  | 3          | 75.0%  |           | 0,0%   | 33    | 37.1%  |
| Earth and space                            | 19                | 22.9%  |            | 0.0%   | 2         | 100.0% | 21    | 23.6%  |
| Evaluate and design scientific enquiry     | 1                 | 1.0%   | 19         | 31.7%  | 19        | 73.1%  | 39    | 21.2%  |
| Physical                                   |                   | 0.0%   | 9          | 47.4%  | 7         | 36.8%  | 16    | 41.0%  |
| Living                                     | 1                 | 100.0% | 10         | 52.6%  | 7         | 36.8%  | 18    | 46.2%  |
| Earth and space                            |                   | 0.0%   |            | 0.0%   | 5         | 26.3%  | 5     | 12.8%  |
| Interpret data and evidence scientifically | 14                | 14.3%  | 37         | 61.7%  | 5         | 19.2%  | 56    | 30.4%  |
| Physical                                   | 4                 | 28.6%  | 6          | 16.2%  |           | 0.0%   | 10    | 17.9%  |
| Living                                     | 3                 | 21.4%  | 18         | 48.6%  | 2         | 40.0%  | 23    | 41.1%  |
| Earth and space                            | 7                 | 50.0%  | 13         | 35.1%  | 3         | 60.0%  | 23    | 41.1%  |
| Total. Physical                            | 38                | 38.8%  | 16         | 26.7%  | 7         | 26.9%  | 61    | 33.2%  |
| Total. Living                              | 34                | 34.7%  | 31         | 51.7%  | 9         | 34.6%  | 74    | 40.2%  |
| Total. Earth and space                     | 26                | 26.5%  | 13         | 21.7%  | 10        | 38.5%  | 49    | 26.6%  |
| Total                                      | 98                | 100.0% | 60         | 100.0% | 26        | 100.0% | 184   | 100.0% |

Source: Own elaboration based on the information from the C2.1 and C2.2 charts (PISA, 2016b).

For its part, Table 3 shows the distribution of the total set of items in the categories, or subscales and the types of scientific knowledge and competences, and also shows the level of cognitive demand of the corresponding items.

Accordingly, 21.2% of the 184 items in the test correspond to the “explain phenomena scientifically” competence, 48.4% to “evaluate and design scientific enquiry”,

and 30.4% to “interpret data and evidence scientifically”. Furthermore, 53.3% of the items correspond to “content knowledge”, 32.6% to “procedural knowledge”, and 14.1% to “epistemic knowledge”. Finally, 31.2% correspond to “physical” systems, 40.2% to “living”, and 26.6% to “earth and space”. As for the level of exigency or cognitive demand, 30.4% of the items have a low level of cognitive demand, 61.4% a medium level, and just 8.2% a high level.

TABLE 3. Distribution of the total set of items by category or subscale, type of scientific knowledge, and competences showing the level of cognitive demand of the corresponding items.

| <i>Type of knowledge</i>                          | <b>Cognitive demand</b> |        |      |        |      |        |       |        |
|---------------------------------------------------|-------------------------|--------|------|--------|------|--------|-------|--------|
| Scientific competence                             | Low                     |        | Mean |        | High |        | Total |        |
| <i>Content</i>                                    | 44                      | 78.6%  | 50   | 44.2%  | 4    | 26.7%  | 98    | 53.3%  |
| Explain phenomena scientifically                  | 41                      | 93.2%  | 40   | 80.0%  | 2    | 50.0%  | 83    | 84.7%  |
| Evaluate and design scientific enquiry            |                         | 0.0%   | 1    | 2.0%   |      | 0.0%   | 1     | 1.0%   |
| Interpret data and evidence scientifically        | 3                       | 6.8%   | 9    | 18.0%  | 2    | 50.0%  | 14    | 14.3%  |
| <i>Procedural</i>                                 | 9                       | 16.1%  | 43   | 38.1%  | 8    | 53.3%  | 60    | 32.6%  |
| Explain phenomena scientifically                  |                         | 0.0%   | 1    | 2.3%   | 1    | 12.5%  | 2     | 3.3%   |
| Evaluate and design scientific enquiry            | 2                       | 22.2%  | 13   | 30.2%  | 4    | 50.0%  | 19    | 31.7%  |
| Interpret data and evidence scientifically        |                         | 0.0%   |      | 0.0%   | 6    | 75.0%  | 29    | 48.3%  |
| <i>Epistemic</i>                                  | 3                       | 5.4%   | 20   | 17.7%  | 3    | 20.0%  | 26    | 14.1%  |
| Explain phenomena scientifically                  |                         | 0.0%   | 2    | 10.0%  |      | 0.0%   | 2     | 7.7%   |
| Evaluate and design scientific enquiry            | 3                       | 100.0% | 14   | 70.0%  | 2    | 66.7%  | 19    | 73.1%  |
| Interpret data and evidence scientifically        |                         | 0.0%   | 4    | 20.0%  | 1    | 33.3%  | 5     | 19.2%  |
| Total. Explain phenomena scientifically           | 5                       | 8.9%   | 28   | 24.8%  | 6    | 40.0%  | 39    | 21.2%  |
| Total. Evaluate and design scientific enquiry     | 42                      | 75.0%  | 43   | 38.1%  | 4    | 26.7%  | 89    | 48.4%  |
| Total. Interpret data and evidence scientifically | 9                       | 16.1%  | 42   | 37.2%  | 5    | 33.3%  | 56    | 30.4%  |
| Total                                             | 56                      | 100.0% | 113  | 100.0% | 15   | 100.0% | 184   | 100.0% |

Source: Own elaboration based on the information in the C2.1 and C2.2 tables (PISA, 2016b).

### 2.2.2. The questionnaire

To measure the proportion of students in each autonomous community and in the national total who report expectations of a science-related career in future (when they are 30), the results obtained from the corresponding PISA 2015 questionnaire have been used (OECD, 2016b).

### 2.3. Variables and analytical procedures

In line with the objectives of this study, attention has been focussed on the measurements of the performance in science, epistemic beliefs (index), and science-related career expectations (index) variables, all of them referring to the autonomous community level. The first of these is defined by the mean score for each territorial unit in the science survey; it should be noted that PISA's use of the Rasch model when estimating performance has been taken into account, using the 10 plausible values available for each student.

The second variable refers to the separation of the epistemic knowledge sub-scale. According to PISA, "epistemic beliefs" show "the way individuals represent the nature, organisation and source of knowledge, e.g. what counts as 'true' and how the validity of an argument can be established" (OECD, 2016b, p. 100). For example, students' views of the nature of scientific knowledge or of the validity of the scientific methodology used to create knowledge are part of their "epistemic beliefs". This "scientific attitude" in students is manifested as

them "seek[ing] knowledge and understanding, adopt a questioning approach to all statements, search for data and their meaning, demand verification, respect logic and pay attention to premises" (OECD, 2016b, p. 100).

The third variable derives from the choice of the options from the corresponding item on the personal context questionnaire that refer to STEM vocations. Therefore, the decision was taken to focus attention particularly on the variable relating to career expectations for the so-called "STEM vocations", using the term coined by the Universidad Politécnica de Madrid and the Fundación Telefónica (Fundación Telefónica, 2014). Consequently, the contribution from the "health sciences" box has been ignored.

Based on the results obtained, which are shown below, two linear regression analyses were performed —performance in science vs. epistemic conceptions and performance in science vs. STEM vocations— with their corresponding ANOVAs in order to test the statistical significance of the respective coefficients of determination. The aggregate results by autonomous region were taken into consideration, along with those obtained for the representative sample for Spain at a national level. Based on this, a comparative study of the different autonomous regions with reference to the national means was performed using *quadrant analyses*, which allow us to identify the autonomous communities that are in the *weakest quadrant*, characterised by values below

the national means for both correlated variables; regions that, therefore, require specific intervention policies.

### 3. Results

#### 3.1. Performance in science

The overall performance in science for each Spanish autonomous community —measured using the mean score in the set of the 184 items included in the PISA 2015 survey— is shown in Graph 2, along with the error intervals for the respective scores. For reasons discussed below, the effects of economic, social, and cultural status (ESCS) on performance have not been corrected in this case in the data in Graph 2. This figure shows the different positions of the autonomous communities with regards to the national mean. Analysis of it shows the special place of Castile and Leon, Madrid,

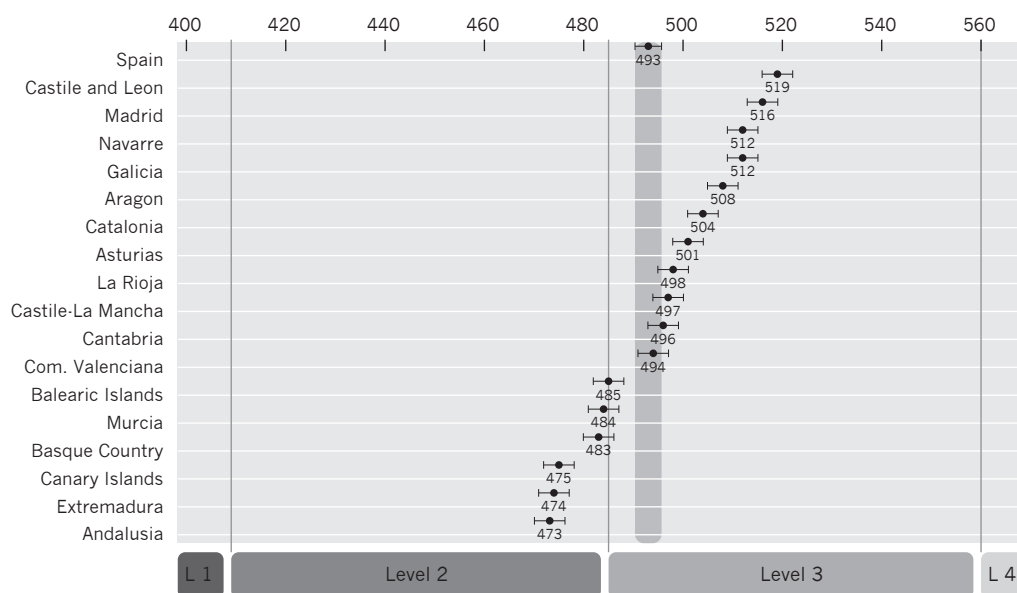
Navarre, and Galicia, in this order, in the field of science, as well as the especially low positions of the Canary Islands, Extremadura, and Andalusia.

In this figure, the size of the regional differences can be seen, reaching a maximum of 46 PISA points when comparing Castile and Leon with Andalusia. This is equivalent to an average educational gap of over one and a half academic years between the two autonomous communities, before controlling for the influence of ESCS<sup>3</sup>.

#### 3.2. Epistemic conceptions

Table 4 shows the percentage of students, by autonomous community, who gave affirmative answers to each of the questions in the questionnaire that relate to students' epistemic conceptions, on which basis, and in

GRAPH 2. Overall science scores in Spain's autonomous communities.



Source: Own elaboration based on the PISA 2015 database.

accordance with the definition provided by PISA (OECD, 2016a), the “epistemic conviction index” is obtained. This is a normalised index, regarding the set of students from OECD countries, with a mean value equal to 0, a standard deviation of 1 and values between  $-1$  and  $+1$ . Negative values on this index show that the students answered below this mean and positive values indicates that they answered above it. A preliminary analysis of the data in this table shows differences between autonomous communities that are reflected in the values of the index in question, and which range between a maximum value of 0.21 for Catalonia and a minimum value of  $-0.03$  for Andalusia, with a mean value of 0.11 and a standard deviation of 0.06.

### 3.3. STEM vocations

Table 5 shows information extracted from the PISA database—which derives from the use of the corresponding context questionnaires—from which the student career expectations that are strictly linked to STEM fields have been selected<sup>4</sup> (science and engineering professionals, including mathematicians, information and communications technology professionals, and science and engineering associate professionals). Based on this, we have a comparative view of the different autonomous communities in what we have called “STEM vocations”. A first analysis of the results from the table shows appreciable variability between autonomous communities, with values ranging from a minimum of 11.2% for the Canary Islands to

a maximum of 20.4 % for Madrid, with a mean of 15.26 % and standard deviation of 2.24.

### 3.4. Linear regression analysis

In accordance with the final aims of the study, regression analyses were performed between the previous variables and performance in science, the results of which are presented below. Both regression analyses confirm the assumptions of the respective models.

#### 3.4.1. Performance in science vs. epistemic conceptions

Graph 3 shows the performance in science vs. epistemic conception of the sciences diagram with values at a national level and by autonomous communities. A linear regression analysis carried out on it reveals the existence of a moderate and statistically significant relationship between the two variables ( $R^2 = 0.47$ ; sig. 0.0016). This indicates that 47 % of the variance relating to performance in science can be explained by the differences concerning the epistemic conceptions variable (see Graph 3).

From a strictly civic perspective, in this case it is appropriate to focus particularly on the group of autonomous communities found in what could be called the *weakest quadrant*, characterised by results below the mean for performance and epistemic conception. Andalusia, the Balearic Islands, the Canary Islands, Extremadura, and the Basque Country are the five autonomous regions which are in this quadrant and so require the greatest attention.

TABLE 4. Epistemic conceptions in the autonomous communities PISA 2015.

|                   | A good way to know if something is true is to do an experiment (%) | Ideas in 'broad science' sometimes change (%) | Good answers are based on evidence from many different experiments (%) | It is good to try experiments more than once to make sure of your findings (%) | Sometimes 'broad science' scientists change their minds about what is true in science (%) | The ideas in 'broad science' books sometimes change (%) | Index of epistemic beliefs |
|-------------------|--------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------|
| Spain             | 85.5                                                               | 82.1                                          | 86.9                                                                   | 87.9                                                                           | 81.0                                                                                      | 81.2                                                    | 0.11                       |
| Andalusia         | 81.8                                                               | 79.4                                          | 83.6                                                                   | 85.8                                                                           | 79.3                                                                                      | 79.0                                                    | -0.03                      |
| Aragon            | 86.4                                                               | 82.1                                          | 86.1                                                                   | 88.6                                                                           | 80.3                                                                                      | 82.0                                                    | 0.12                       |
| Asturias          | 86.8                                                               | 83.1                                          | 88.2                                                                   | 90.8                                                                           | 82.5                                                                                      | 84.5                                                    | 0.18                       |
| Balearic Islands  | 85.3                                                               | 84.9                                          | 86.5                                                                   | 86.5                                                                           | 81.5                                                                                      | 83.6                                                    | 0.10                       |
| Canary Islands    | 83.6                                                               | 82.1                                          | 84.4                                                                   | 86.8                                                                           | 80.1                                                                                      | 79.3                                                    | 0.07                       |
| Cantabria         | 86.5                                                               | 82.4                                          | 87.0                                                                   | 88.7                                                                           | 81.2                                                                                      | 81.5                                                    | 0.14                       |
| Castile and Leon  | 89.4                                                               | 84.4                                          | 89.9                                                                   | 91.8                                                                           | 84.5                                                                                      | 81.4                                                    | 0.20                       |
| Castile-La Mancha | 87.1                                                               | 81.4                                          | 88.3                                                                   | 90.5                                                                           | 80.0                                                                                      | 82.0                                                    | 0.13                       |
| Catalonia         | 86.5                                                               | 87.0                                          | 88.4                                                                   | 87.2                                                                           | 83.5                                                                                      | 84.2                                                    | 0.21                       |
| Com. Valenciana   | 84.4                                                               | 81.1                                          | 85.4                                                                   | 86.6                                                                           | 80.2                                                                                      | 78.9                                                    | 0.05                       |
| Extremadura       | 84.2                                                               | 79.6                                          | 84.1                                                                   | 88.3                                                                           | 80.3                                                                                      | 79.7                                                    | 0.03                       |
| Galicia           | 89.3                                                               | 73.1                                          | 88.8                                                                   | 91.0                                                                           | 80.5                                                                                      | 81.9                                                    | 0.09                       |
| La Rioja          | 83.9                                                               | 81.1                                          | 83.0                                                                   | 87.2                                                                           | 79.5                                                                                      | 81.6                                                    | 0.08                       |
| Madrid            | 87.3                                                               | 82.7                                          | 89.0                                                                   | 90.8                                                                           | 81.7                                                                                      | 81.8                                                    | 0.19                       |
| Murcia            | 86.2                                                               | 84.6                                          | 87.4                                                                   | 88.8                                                                           | 82.0                                                                                      | 82.6                                                    | 0.13                       |
| Navarre           | 85.6                                                               | 81.3                                          | 86.3                                                                   | 88.7                                                                           | 80.7                                                                                      | 79.5                                                    | 0.09                       |
| Basque Country    | 85.2                                                               | 83.0                                          | 85.9                                                                   | 88.3                                                                           | 82.1                                                                                      | 81.7                                                    | 0.07                       |

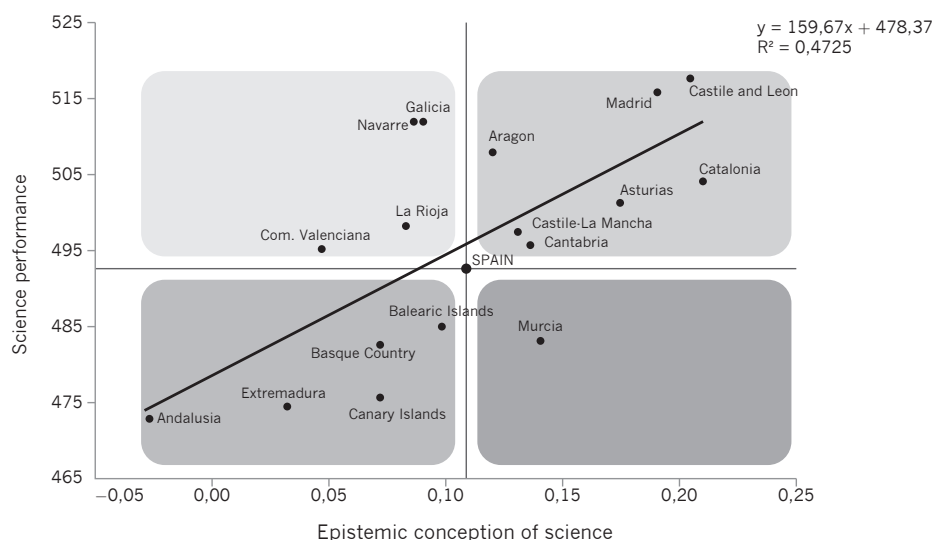
Source: Own elaboration based on the PISA 2015 database.

TABLE 5. STEM vocations in the autonomous communities PISA 2015.

|                   | Science and engineer-<br>ing professionals (%) | Information and com-<br>munication technology<br>professionals (%) | Science and engineer-<br>ing associate profes-<br>sionals (%) | STEM<br>vocations (%) |
|-------------------|------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------|-----------------------|
| Spain             | 11.1                                           | 3.6                                                                | 0.6                                                           | 15.3                  |
| Andalusia         | 8.2                                            | 3.7                                                                | 0.5                                                           | 12.4                  |
| Aragon            | 11.7                                           | 3.5                                                                | 0.6                                                           | 15.7                  |
| Asturias          | 11.8                                           | 4.7                                                                | 0.8                                                           | 17.4                  |
| Balearic Islands  | 9.5                                            | 4.8                                                                | 0.3                                                           | 14.5                  |
| Canary Islands    | 8.3                                            | 2.5                                                                | 0.4                                                           | 11.2                  |
| Cantabria         | 10.3                                           | 3.6                                                                | 0.7                                                           | 14.6                  |
| Castile and Leon  | 11.8                                           | 3.1                                                                | 0.3                                                           | 15.2                  |
| Castile-La Mancha | 10.3                                           | 3.8                                                                | 0.5                                                           | 14.6                  |
| Catalonia         | 12.9                                           | 4.5                                                                | 0.8                                                           | 18.2                  |
| Com. Valenciana   | 10.9                                           | 4.0                                                                | 0.4                                                           | 15.2                  |
| Extremadura       | 9.0                                            | 3.2                                                                | 0.4                                                           | 12.6                  |
| Galicia           | 11.6                                           | 4.4                                                                | 0.6                                                           | 16.6                  |
| La Rioja          | 9.8                                            | 4.3                                                                | 0.0                                                           | 14.2                  |
| Madrid            | 16.0                                           | 4.2                                                                | 0.2                                                           | 20.4                  |
| Murcia            | 9.9                                            | 2.9                                                                | 0.5                                                           | 13.3                  |
| Navarre           | 12.2                                           | 2.7                                                                | 0.7                                                           | 15.6                  |
| Basque Country    | 14.4                                           | 2.8                                                                | 0.4                                                           | 17.6                  |

Source: Own elaboration based on a selection of the information available in the PISA 2015 context database.

GRAPH 3. Linear regression analysis between performance in science and epistemic conceptions of science in the autonomous communities PISA 2015.



Source: Own elaboration based on the PISA 2015 database.

### 3.4.2. Performance in science vs. STEM vocations

Graph 4 shows the performance in science vs. STEM vocations diagram based on the national and autonomous community samples. The linear regression analysis reveals the existence of a relationship between these two variables which is, again, moderate and statistically significant ( $R^2 = 0.46$ ; sig. = 0.002). This type of analysis has known limitations for unambiguously establishing the direction of the causal link; in this case, it is very likely that there is a feedback loop in which performance in science shapes the STEM vocation and this vocation stimulates scientific learning. However, this result underlines the strength of the relationship between these two variables and is useful for categorising the position of the different autonomous communities regarding two variables that can be considered clearly significant as plausible predictors of the

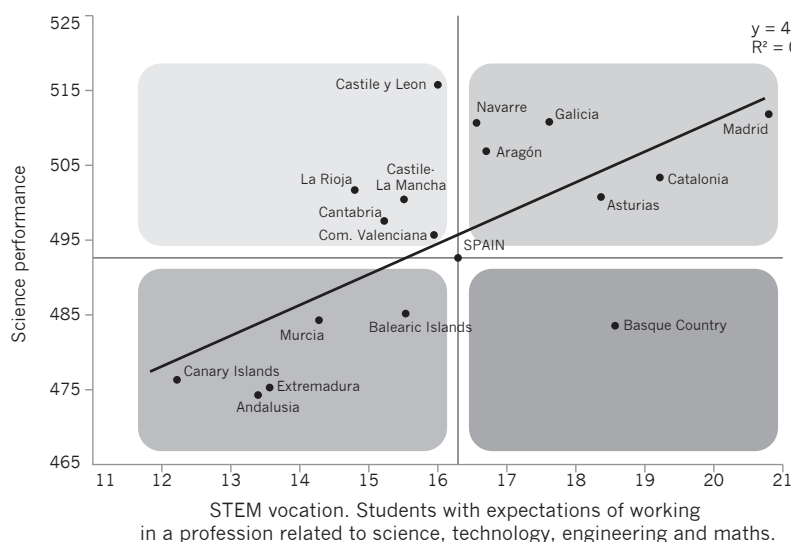
future economic and social development of their corresponding areas.

### 3.4.3. An overview

Graph 5 provides an overview of the results of this analysis of the relative positions of the 17 autonomous communities with regards to the three variables considered in this work, and shows the distribution of the autonomous regions according to whether they are above the national mean in any of the three aspects considered.

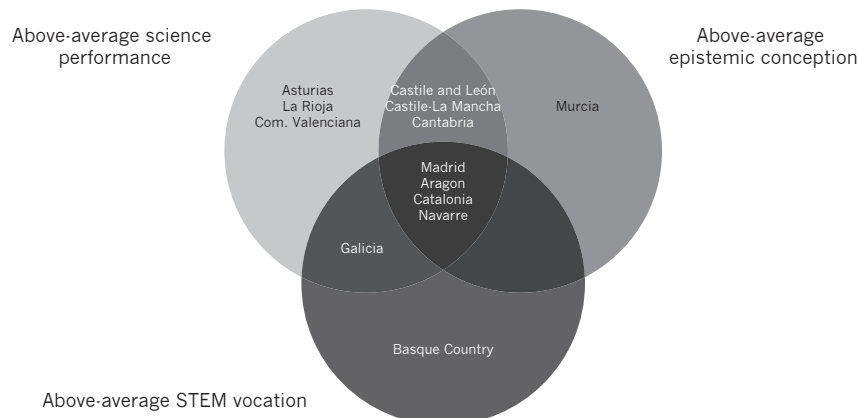
Students from Madrid, Catalonia, Aragon, and Navarre are on average above the national mean in performance in science and in their epistemic conceptions, as well as in their expectations of a STEM-related career in future. However, students from Andalusia, the Balearic Islands, the Canary Islands, and Extremadura were not above the national mean for any of the three variables analysed.

GRAPH 4. Linear regression analysis between performance in science and STEM vocations in autonomous communities PISA 2015.



Source: Own elaboration based on the PISA 2015 database.

GRAPH 5. Relationship between performance, STEM vocation, and epistemic conception in the autonomous communities PISA 2015.



Source: Own elaboration.

## 4. Discussion

Although adjustment of the raw scores for science by controlling for the effect of socio-economic and cultural status on students' performance should be taken into account (López Rupérez, García, & Expósito, 2018 a and b), in the context of this study and its aims, this adjustment would only make

sense for reasons of justice, when adjusting the size of responsibilities. It does not reduce the importance of the future challenges that, given the well-known link between science education and economic and social development, face individuals, the public authorities, and society itself in each of these regions, but rather it compounds them.

The 2015 edition of PISA, in the personal context variables, focussed on students' motivation for scientific study—in particular, on the satisfaction they derive from studying the sciences—and on their expectations of a future—at the age of 30—science-related career. This approach is justified by the OECD (2016b) on the basis of expectancy-value theories (Wigfield & Eccles, 2000) and theories relating to the socio-cognitive nature of professional orientation (Lent, López, López, & Sheu, 2008). As the authors of the PISA 2015 report have underlined, in general terms, both variables—motivation and career expectations—are positively correlated with each other and with performance.

Based on this general empirical evidence, we have chosen to consider STEM vocations and epistemic conceptions in addition to performance in science with the aim of describing behaviour in these areas in the different autonomous communities. Furthermore, the relationships between them have been explored to consider the civic dimension and the economic dimension of science education. However, a multi-variable analysis might cast additional light on some of the explanatory factors for performance in science in each of the autonomous communities and on the differences between them.

In this work, we have replaced the term “epistemic beliefs” by “epistemic conceptions”. After all, it is a matter of cognitive representations of the truth or validity of the arguments used (Hofer & Pintrich,

1997) which are not *prima facie* connected to the ethical, moral, religious, or political dimensions of the individual, however much they might occasionally and spontaneously be shaped by them.

As PISA notes, there is empirical evidence for the existence of a direct relationship between this variable and the ability of students to learn science, and consequently with their school results in the science areas (Mason, Boscolo, Tornatora, & Ronconi, 2013). Nonetheless, there is one aspect that transcends the school setting to reach the truly civic dimension of future citizens in a context of information overload, proliferating fake news, growing complexity in decision making, and in political judgement or in informed opinion on aspects that concern them.

In this civic field, relating to the exercise of citizenship, a quality science education is mentioned in the PISA report itself from two complementary viewpoints, which could be described here as “intellectually mature citizenship” and “politically responsible citizenship”. The first viewpoint can be described as typical of citizens who, in their reasoning about questions of collective interest, can adopt elements and principles relating to science, its endeavour and its processes. This increases the rigour of their approaches to political and social reality and, with a suitable basis, reinforces their critical spirit. The items focussing on epistemic conceptions are particularly aimed at evaluating the fulfilment of this objective.

The second viewpoint relates to “the ability to engage with science-related issues, and with the ideas of science, as a reflexive citizen” (OECD, 2016b, p. 28). In view of the important penetration of scientific knowledge in many social problems and their political solutions, politically responsible citizens must be able to adopt a well-founded position in debates and when faced with political proposals that have, or should have, a scientific or technological basis, of which there are currently many. Satisfactory science performance would ensure, with greater probability, that kind of civic competence.

Furthermore, there is a broad consensus among international institutions (Langdon, McKittrick, Beede, & Khan; Doms, 2011; CEDEFOP, 2016; WEF, 2016) and among specialists (Randstad Research, 2016) when relating the increase in demand for STEM teaching, and the improvement in the corresponding competences, with economic growth, in the context of the fourth industrial revolution, which has already begun and will reach in its zenith in the 21st century. Therefore, the possibility of more closely linking training with economic and social development in Spain's autonomous communities could become clearer if we look towards STEM vocations.

In advanced countries, the shift of the economy and society towards employment contexts that depend strongly on knowledge have moved science education and STEM education into areas regarded as strategic in the current century. The convergence of the predictions and analyses made in this area by organisations from the most developed countries warning of the importance

of preparing young people to occupy the many STEM employment niches that are already being created and will be created, more quickly in future (CEDEFOP, 2016; Langdon et al. 2011) is no surprise.

One of the well-known mechanisms explaining regional development in technological industries relates to the establishment of multinational companies which, as well as creating high added-value employment, in the medium term stimulate the development of specialised SMEs and produce knowledge transfers in their setting. This mechanism strongly depends on the existence in the region of human capital with a good basic technological education. In addition, other studies anticipate the important impact of STEM employment on indirect non-STEM employment in the same geographical area (Randstad Research, 2016).

In view of everything stated above, and if the aim is, primarily, to improve performance in science in general and, in particular, students' epistemic conceptions, significant improvement in the quality of science teaching is a necessary condition, to which end the following recommendations at the level of teaching practice are made:

- Explicitly incorporating science curriculum objectives aligned with epistemological aspects of scientific knowledge.
- Organising learning situations, around laboratory practice or virtual simulations to familiarise students with formulating hypotheses and testing them empirically, in light of the data generated in these practical activities.

- Designing experiments that make it possible to test empirically some of the students' spontaneous ideas in order to accustom them —on the basis of first-hand experience— to being cautious when faced with a priori or positions or statements of apparent *common sense* (López Rupérez, 1994).
- Using laboratory reports as exercises to simulate scientific activities at the students' level that are similar to the activity of preparing scientific papers for publication in specialist journals, maintaining a similar structure and focus (López Rupérez, 1986). So, for example, going beyond laboratory reports as mere descriptions of tables of data or of qualitative observations so that discussion of empirical evidence is included in them obliges students to carry out processes of intellectual development in which personal formulations or interpretations have to be consistent with this evidence.
- Using the *project-based learning* methodology as one of the components of science teaching, on the understanding that, in accordance with the available evidence. It should be treated as an instrument part of a broader didactic strategy, whose value for developing critical thinking is widely accepted by researchers, on an empirical basis (Willett, 1983; Thomas, 2000). As the promoters of this methodological option themselves have warned: "Projects typically do not constitute the whole educational program; instead, teachers use them alongside systematic instruc-

tion and as a means of achieving curricular goals" (The Project Approach, 2014, p. 1).

All of these basic didactic procedures are also aligned with the goal of achieving *deep learning*, characterised by a high level of comprehension of phenomena and of their conceptual and theoretical bases, their cause-effect mechanisms, and their significance. Deep learning improves performance in science at the same time as facilitating the consolidation in the students' minds of these metacognitive skills which are typical of scientific thought, and in the PISA study are referred to as "epistemic beliefs".

With regards to policies, improved science teaching necessarily means having an effective impact on the teachers and the curriculum. As for teachers, initial selection and training policies are key (López & Rupérez, 2014). Alongside these policies, directed at the medium term, those relating to lifelong learning, the development of which is one of the competences of the autonomous communities, are vital to achieve desirable short-term results (Real Sociedad Española de Física, 2018).

As for the guidance regulations for organising the curriculum, strategies must be promoted that facilitate this deep learning and increase the effectiveness of lessons. To do this, it is necessary to target effective teaching time —a variable that has proven to be empirically important (Downer, 1991; OECD 2016a)— by increasing the number of hours per week, something the educational administrations of

the autonomous communities in question have sufficient powers to do (Real Sociedad Española de Física, 2018). Likewise, it is necessary to reduce the breadth of syllabuses in favour of greater depth through, among other measures, the type of learning scenarios described above. This curriculum intervention can be implemented without preventing a sufficiently comprehensive overview of the subject from being achieved at a particular stage by distributing topics in a particular linear direction, and not systematically in a spiral as has been normal in Spain. This requires carefully choosing the items for each year according to their cognitive demand, the internal coherence of the subjects, as far as is possible, and the students' age level (Shayer, 1978; López Rupérez & Palacios Gómez, 1988). This reorientation in the realisation and implementation of science curricula would make it possible to improve results in general, especially those of the autonomous communities located, according to our study, in this *weakest quadrant*.

We shall now, secondly, discuss the results linked to STEM vocations and provide recommendations for policies to improve its relationship with the empirical analyses made for different groups of autonomous communities. Based on Graph 5, four categories for the autonomous communities as a set can be established:

- Category A (*high vocation, high performance*), which includes Asturias, Aragon, Catalonia, Galicia, Madrid, and Navarre. These six autonomous communities occupy the *optimum*

*quadrant* and so are in a relatively noteworthy position to adapt to the regional demands of the fourth industrial revolution, in terms of employment, economic growth, and social progress.

- Category B (*low vocation, high performance*) comprises Cantabria, Castile-La Mancha, Castile and Leon, the Comunidad Valenciana, and La Rioja. Owing to their good or relatively good figures for performance in relation to the national mean, they could easily join the first category — Castile and Leon and the Comunidad Valenciana in particular— by increasing efforts to raise awareness of the appeal of STEM professions through institutional campaigns supported by tools such as Science and Technology Forums, Science and Technology Weeks, etc. particularly aimed at secondary school students. Furthermore, working to improve the professional guidance system in secondary schools is a necessary recommendation, as this is one of the shortcomings identified in the Spanish educational system (Consejo Escolar del Estado, 2012).
- Only the Basque Country is in Category C (*high vocation, low performance*). This anomalous situation could be the result of a socioeconomic situation that encourages people to embrace STEM vocations, combined with an educational system that cannot offer students appropriate intellectual tools to achieve this personal ideal. In such a case, the recommendations for general improvement of school performance

described in an earlier piece of research (López Rupérez et al., 2017) (focus on general educational policies intended to raise the performance level of all students, through interventions by the state—teaching profession model, general curriculum organisation, conception of school management, etc.—and by the autonomous community—managing the centres, school atmosphere, continuous teacher training, systems of incentives, complementary academic planning, family-school relationships, etc., which have the greatest impact on results, and implement actions aimed at improving the students' non-cognitive skills) are also applicable to the specific field of the sciences.

- Category D (*low vocation, low performance*) corresponds with the *weakest quadrant*, which includes Andalusia, the Balearic Islands, the Canary Islands, Extremadura, and Murcia. This group of autonomous communities—in particular, the Canary Islands, Andalusia, and Extremadura—is in a precarious position for facing the challenges of the fourth industrial revolution based on education. For this reason, in the framework of a necessary national strategy to clearly adapt the country to the knowledge revolution, educational systems in these autonomous communities should receive special attention. The combination of these two groups of policies described above for categories B and C is a primary recommendation for facing the challenges of the future at the regional level with some chance of success.

## Notes

<sup>1</sup> For an explanation of this term, see the Discussion section.

<sup>2</sup> See <http://dx.doi.org/10.1787/888933433242>

<sup>3</sup> In PISA 2015 a difference of 30 points is equivalent to an average educational gap of a complete academic year (OECD, 2016 a; Box 1.2.1, p.65).

<sup>4</sup> STEM vocations comprise categories 21 (science and engineering professionals), 25 (information and communication technology professionals), and 31 (science and engineering associate professionals) from the International Standard Classification of Occupations, ISCO-88: <http://www.ilo.org/public/spanish/bureau/stat/isco/isco08/index.htm>

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# Cultivating creativity for intercultural dialogue

## El cultivo de la creatividad para el diálogo intercultural

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### Abstract:

The present article analyses how cultivation of creativity underpins the possibility of rational dialogue with people who have different cultural origins by confirming the essentially productive character of human beings and contemplating creativity as a human dimension with intrinsic value, linked to the full realisation of the individual's personality. The phenomenon of creativity is examined as an event that —sometimes dramatically— extracts the subject from the cultural world of mediations formulated within her own tradition that she usually inhabits, thus revealing to her a transcultural reality that manifests itself clearly. Recognising this original reality —which goes beyond the signifies constructed by different cultural traditions and from which creative action occurs— is the starting point for a true dialogue between cultures that enables a process of cultural critique, in other words, an examination of the validity of the products or objectivities of one's own culture and the cultures of others.

**Keywords:** creativity, culture, education, truth, interculturalism.

### Resumen:

A través de la constatación del carácter esencialmente productor del ser humano y de la consideración de la creatividad como una dimensión humana valiosa en sí misma, ligada a la realización plena de la personalidad del individuo, se analiza cómo el cultivo de la creatividad *cimenta la posibilidad de diálogo racional con los que tienen orígenes culturales diversos*. Se examina el fenómeno creativo como acontecimiento que saca al sujeto —en ocasiones de manera dramática— del mundo cultural en el que normalmente vive, de meditaciones elaboradas en el seno de la propia tradición, y le descubre una realidad que se manifiesta de manera palmaria y que es *transcultural*. El reconocimiento de esta realidad originaria, más allá de los significados contruidos por las diversas tradiciones culturales, y a partir del que la acción creativa tiene precisamente lugar, constituye el punto de partida para un auténtico diálogo entre culturas que posibilite una tarea de crítica cultural, a saber, un examen de la validez de los productos u objetivaciones de la propia cultura y de otras.

**Descriptores:** creatividad, cultura, educación, verdad, interculturalismo.

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## 1. The humanity of *poiesis*

Human beings are eminently productive. Their existence involves transforming the natural world they encounter in a way that can be described as *social*, in other words, not only for their own benefit as individuals, but for the species, for others. Marx (1974) said that the essence of humanity is work, something he classifies as shaping the environment the individual inhabits, since for human beings it is natural to change nature, to construct an inhabitable world (Gehlen, 1980).

The issue this raises is to determine what the possibilities of this transformation are and —despite its intrinsically mediated character— whether it can display the originality and immediacy of natural reality and serve as a meeting point for people with different cultures. This question points towards the question of the limits of human artistic expression in the broad sense and its ability to allude to *that which is*, to the real as distinct from the constructed (which is always *culturally* constructed), to the *ens ut ens* in contrast with the *ens ut verum*, to ontological distinctions in contrast with merely logical and linguistic ones, and, consequently, to that which does not depend on humankind: what humankind does not create but rather finds.

The transformative or productive aspect of the human being deserves careful and specifically educational attention, owing to the possibilities this characteristically human activity raises for co-existence in an evidently diverse world.

However, it is also important to note the existence of groups of people whose way of life is characterised by a distinct lack of interest in the world and, consequently, in transforming it. Inciarte (2016) mentions the Aramaic Monophysites, motivated in their way of life by a pure longing for God expressed as a clear disdain for the merely human world and its fleeting products. Their way of life is characterised by activity that aims to be pure action (*praxis*, *doing*) at the margin of producing (*poiesis*, *making*) culture and its rational and artistic expressions. Inciarte draws attention to the insulting simplicity of a such an ascetic existence but, at the same time, he understands the meaning of this type of pure Christian expression, which can also be recognised in everyday existence where, in the hustle and bustle of human activity, the finite suddenly loses all of its importance to be displaced by the diffused fulness of the absolute. This ambivalence of contradictory impulses is typically human, and it is opting for just one of them that causes the author to be perplexed.

While one of these poles might monopolise the interest of some, on the whole it is not only action but also production or making —of which work is a form, as an effort that leads to a result and whose virtue is laboriousness— that is characteristic of the human way of being in the world. The intimate relationship between life and art in the etymological sense, which contains creativity as one of its possibilities, is understood from this perspective. Creativity is the characteristic that makes human production novel, original, and

also relevant, as novelty is not a sufficient condition for creativity (Cropley, 2004; Runco, 2008). Creative action is necessary in two ways: not just for excellence, for the whims of a fulfilled and satisfied existence, in other words, not just for what is superfluous or excess beyond the merely physical or natural or the fight for survival, but also for the demands of material *living* as this requires strategies discovered imaginatively that can respond more effectively to the challenges of existence. Cropley emphasises the *social* dimension of the creative phenomenon, given that it «does not occur in a vacuum, but in a social context» (2004, p. 13), and so is incomprehensible in the abstract or without relation to the demands of the specific surroundings in which it arises and to the judgements of others. Creative action is also necessary for *human* life, that is, for oneself beyond the merely natural. Human beings are open to the perfection of their natural creative potential and they need this through appropriate educational action. This is why theories of creative *potential* are genuinely relevant in the field of pedagogy, faced with those theories that focus on creative *performance*, even though the concept of creative potential in them is more slippery in terms of identifying and evaluating it, than the one that focusses on products (Runco, 2008). The educational process of developing creative potential allows individuals to discover their most characteristic identity through what they produce and necessarily compares them with others who are also producing subjects, not just those with whom they immediately coexist but also people living in more distant

settings. We will analyse two dimensions of creativity—the identity of the creator and the creative process—and then evaluate the extent to which nurturing creativity through educational actions can lay the foundations for the possibility of a rational dialogue between people of different cultural origins. The need for this and for a solid intercultural education is clear given that «the likelihood of conflict in the case of civilizational, sectarian, linguistic, and civilizational-linguistic diversity is statistically higher ( $p < 0.05$ ) than the likelihood of conflict in a homogenous social setting,» even though «this does not mean that the mere fact of cultural, ethnic, or religious diversity automatically generates confrontation [...], nor that cultural homogeneity is a guarantee of peaceful coexistence» (Álvarez, González, & Fernández, 2012, p. 28).

## 2. Art and human creativity: current perspectives

There has been very significant growth in literature on creativity as a human characteristic in recent decades, particularly since Guildford's efforts to study it scientifically. This is not just the case from a quantitative viewpoint; studies into creativity have also undergone a qualitative transformation. Traditional disciplines initially approached creativity systematically, applying their own methods to their analysis of it and emphasising elements of it that were ignored by initial studies, which had linked it exclusively to general intelligence. Runco (2004) carried out a review of the development of research into creativity over the previous

thirty years, bringing together the various perspectives from which it had been considered (behavioural, biological, clinical, cognitive, developmental, economic, educational, historical and historiometric, institutional, psychometric, and social). The philosophical approach to creativity doubtless dates back to the beginnings of ancient Greek thought, albeit using other terms, but it is in recent decades that it has been explicitly positioned at the centre of attention of research, forming an area of study with its own substance. As Copley (2004) notes, according to the Nomura Institute, human society is in its fourth era —the era of creativity— having passed through the information era, which followed the industrial and agricultural eras.

In the field of pedagogy, the possibilities for developing creative thought have been well recognised, given their clear usefulness, so much so that teachers have been described as «creativity workers» (Grupo Si(e)te. Educación, 2012, p. 8). This is especially relevant in the current era, characterised as it is by accelerated cultural evolution, the pace of which seems to increase exponentially as the world becomes more complex (Runco, 2004; Urban, 2015). Piirto includes creative and innovative skills in the category of *21st century skills* and classifies them in three types according to whether they relate to individual work, work with others, or the application of ideas of this type. In relation to the second of these categories, she emphasises her belief that creative capacities necessarily involve other people, owing to the importance of communicating and developing these ide-

as in a social way to take into account the perspectives of the other. Therefore, Piirto collects the comments by a group in which particular care was taken of the relationships and attitudes of the members to encourage creativity:

The idea of feeding back —instead of feedback— suggests that we are all nourished by observing the work. Giving food or digested opinion —like comment back to the author—, suggests more of a reciprocal relationship. More of a two way continuum than a dead end street (2011, p. 38).

In addition to a routine element, which is necessary for appropriate performance in practical situations, insofar as all of them have a common basis, López Ruiz (2000) also identifies as a component of the empirical knowledge of good practical professionals, a creative element, which our era requires us to develop with particular care to overcome the eventualities that assail experts in their professional life, imaginatively discovering new and previously unthought of ways of practising their disciplines.

The exceptional impetus this field of study has experienced has taken shape in the interest shown by educational policies of European, American, Australian, and Asian countries in including promotion of creativity as a central educational objective (Shaheen, 2010), albeit recognising that society and educational systems are *de facto* ambiguous in their tolerance or acceptance of the novelty this entails, thanks to the continued existence of the traditional transmission-based pedagogical model and the tendency to look with

suspicion at anything that deviates from established forms (Cropley, 2004). This may be why creativity as a human phenomenon has largely been considered *in its utilitarian element* (functional or applied creativity) (Cropley, 2004) and, consequently, the existence of the growing number of studies into it justify themselves with the claim that promoting it has beneficial outcomes in practice or can be applied with positive effects in the lives of individuals. The result of research with this focus often leads to strategies that can be implemented in the different areas of human interest (business, political action, educational institutions, etc.) to improve them so that a better fit is achieved between individuals and the settings they inhabit, which, however, is not equivalent to merely fitting in with this setting it but instead demands the critical —ethical— task typical of postconventional thought (Runco, 2008). In the case of the most developed economies, encouraging creativity is starting to be seen as the only way to maintain economic competitiveness, and so the new directions for future studies into it have been identified (including, in the field of artificial intelligence) (Dickhut, 2003). The still-limited attention given to this matter in teacher training programmes is striking (Davies, 2004).

### 3. A new perspective in the study of creativity: creative action to encourage humanity

It is important to discuss education in creativity as an end in itself, for the full development of the personality of the individual, as it is a quality linked to the pro-

ductive capacity of human beings that is essential to them, so that *their humanity is also in play in the cultivation of this feature*. We intend to examine here the phenomenon of creative production from this focus.

Therefore, we adopt the perspective Regmi (2016) describes as humanistic in his classification of lifelong-learning models. That is, the perspective that regards learning as a task that is not just linked to producing capital and creating the right conditions for it, but that aspires to develop the individual's spiritual capacities all through her life as a means of expressing her individuality and of developing a democratic citizenship as its most valuable possession: a possession which is in one's own hands and not at the mercy of external circumstances. From this perspective, creative action can to some extent be considered *on the margin* of the more or less accomplished products to which it leads, dwelling on the *creative* process itself and the possibilities it provides for the individual.

Consequently, we refer to creativity as a capacity that can be perfected in light of a more complete expression and understanding of the subject and the world around her. This is valid so long as individual differences are taken into account (Gagné, 1991), and, therefore, creative development is understood in proportion to the individual's natural skills, which are the starting point of all education. In any case, it is aimed at realising the latent and hitherto unknown possibilities of the self, something that would undoubt-

edly benefit the social entity. But this is a matter not of focussing on the subsequent *effect*, but of noting its intrinsically valuable character and *its relationship with the aim of human life understood as a process of continuous learning* that starts with comprehensions of the world and the self that feedback and help each other in their relative partiality. On these lines, Piirto considers that «the creative process is also tied with the desire for personal expression», while most studies that consider this essentially concentrate on «the expository, the impersonal, and the evaluative» (2011, p. 4). In other words, they neglect the experiential aspect relating to the body and the emotions. Piirto maintains that this is a simplistic way of analysing the phenomenon of creativity, and so must be expanded.

Consequently, we do not refer to research into creativity that is linked exclusively to high capabilities here. Naturally, it is reasonable and, given that everyone has the right to an education, it can be demanded that specially designed programmes for highly gifted individuals are implemented that offer a level of challenge, pace, and intensity suited for their skills to fully develop their personality, as is tried in the case of other individuals. But it is a mistake to link creativity solely to high capacities, because it is a *human dimension that is present in all areas and is not always linked to the genius of an outstanding or highly-gifted individual*, just as it is not merely related to the narrowest meaning of the arts (Piirto, 2011; Runco, 2008). In this sense everyday creativity has been discussed, and in the

words of Runco, «everyday creativity does not require high-level achievement or expertise» (2014, p. 678). On these lines, education in creativity becomes meaningful as a learning process that occurs in all stages of life. In fact, exploration of the creative possibilities of the adult stage has great possibilities, given that at this stage the subject has greater metacognitive talents and better control of the learning process. In this stage, boosting this natural capacity is fundamental for deliberately revealing previously unexplored aspects of the subject's own personality, which have a direct impact on its development, as well as giving the individual tools that were not previously taken into account and that allow her to resolve social and political problems in everyday life.

If we turn to an example from the field of education, we could refer to academic freedom, which contains the possibility of creativity in teaching activity. Teachers create starting conditions — shaped by their individual personalities and, therefore, more or less creative — that involve adequate preparation for students to experience the desired comprehension, something that is always an activity of individual autonomy. This creative task should not be regarded as a pure medium, neither when considering the teacher's life or the student's life, but rather as part of a plan for personal realisation, in the teacher's case as a teacher and it is a model for action and can also become a model for personal identification, in an exemplary originality, for the student. As Kant (1999) observed, a geni-

us's masterpiece is a work that provides a model from which its creator cannot formulate rules, but which is an example to follow. Teaching as a creative action can, undoubtedly, be put forward as a model to be imitated by those inspired by the words, works, and character of the person who teaches.

This facet of the creative phenomenon—its essentially *persuasive* way of being (Runco, 2008)—has been added to the traditional ways of approaching it that often stand out in studies on creativity: the creative *process*, the *product* obtained, the creative *personality*, and the influences or *environmental pressures*, following Rhodes (Piirto, 2011; Runco, 2004). Our approach to it fundamentally relates to two of the above mentioned approaches: the creator's personality, examining what happens in this act of production that is characteristic of her and gives rise to culture as the humanity of the individual, and the environmental factors that influence her, with the aim of determining the transcendent scope of the creative action, its valuable character for interpersonal relationships, beyond studying it exclusively in relation to the material or physical needs of natural existence. We will examine both matters more closely.

#### 4. The creator's identity

Creativity has often been defined as a sign of the absolute in the individual, of her character which is in a way divine or, at least, resembles the divine. As Piirto (2011) notes, the start of a creative process often involves a certain *personal*

*transformation*, which, to use Inciarte's (2016) terms, rather than being a change in content, in the *whats* of one's life, is a way of being, the acquisition of an innovative *how* for one's existence. Therefore, an explanation of creativity that is limited to the strictly intellectual level and disregards the body will unavoidably be simplistic and must be expanded on, given that it inevitably relates to emotional and experiential aspects of the subject.

Without a sufficiently strong impulse to disturb the normality of ordinary life, a creative task with chances of success is unlikely to come into being. The will must be involved. Piirto (2011) refers to a sting which acts as a catalyst for creative action and so is present as its *beginning* and *principle*, encouraging the individual to embark on it as though it were acting like a magnet that irresistibly attracts. Consequently, a *tension* is uncovered in the individual, which can be expressed as a sort of lament without solace, since, as Kierkegaard said, the sighs and cries of the poet sound like beautiful music for others, but are experienced by him as torment. This can be seen in the experience of some artists who, in part, desire a more comfortable and simpler life, a life removed from the challenge and fear of creation, which Piirto recognises as such, since it is often linked to failure. In this regard, Piirto says the creative process must be understood as a spiral, «a long-term, cyclical process of small successes and frequent mistakes» (2011, p. 1). Setting out on the path of divergent thinking, a necessary condition for creativity to be possible,

involves taking risks, reviewing what one already knows in a new way in order to move beyond it, faced with the search for the correct response based on what one already knows.

Lassitude, laziness, inertia—all operate in preventing us from creating—. Rejection, indifference, and criticism from others also thwart creativity. Fear of creating also has a place in obstructing the creative process. (Piirto, 2011, p. 8-9).

Despite this, the impetus to creative action is overriding (Piirto, 2011), as though it were a need, and so the individual appears not to be in control of her own free will and the creative decision. This was Plato's position in the *Apology*, *Ion*, and *Phaedrus*; the Muse takes over the poet and uses her to express art, without the poet being able to explain what she says, thus confirming its divine origins.

From outside, the behaviour of an individual who constantly complains about what she is doing but continues to do it without backing her words with consequent actions, seems incoherent, but this tension is a reaction to the experience often lived by the creator. The ambivalence of the inclinations that affect her is an expression of the fundamental human paradox, which resides in the fact that, in recognising its facticity and contingency, in the experience of the boundary one encounters when confronting frequent failures, which are experienced in physical tiredness, definitively, in the experience of finitude, the deepest elements of the self are discovered, elements that comprise the *striving for the absolute, the desire for the*

*infinite, and the aspiration to transcendence*. This inclination leads her to a tireless movement of the will, which does not rest, is not completed by or satisfied with passing situations. The artist experiences this trench in the most acute way, finding her hypersensitivity wounded in the cross-fire of heaven with its eternal promises and the world, which attracts and seduces with passing illusions. The artist is also flesh and blood. But, as Piirto notes, «often, the thorn, the passion that wounds, also saves» (2011, p. 8).

The perils of this dangerous path, which the creator follows, are clear, but she recognises that this is the only authentic path. Anything else means settling for false entertainments that do not allow her to reach her own limits. Hoping that the process of creation will be free from difficulties is as false as thinking that a path to learning will be a bed of roses, in line with a romantic nature in which the teacher entertains those who participate in her lessons in an idyllic way and makes them happy, eliminating any obstacle and without disturbing their calm. This promise is typical of the market sector, but not of any sensible pedagogical plan (Revenga, 2005). Effort and a certain disquiet are inevitable, as it is always easier to remain where one is. Uncertainty about where this process will lead means taking a leap, but the effort becomes more bearable if one knows one is accompanied by a teacher (Steiner, 2011).

The cultural character of humankind is experienced in this tension, which becomes ever more complex when confirm-

ing the existing cultural diversity, the many —and sometimes contradictory— ways of expressing one's deepest identity.

## 5. Time, dedicated practice, and freedom as pre-conditions for creativity

Before considering the relationship between educational encouraging creativity and the broad possibilities of cultural critique (owing to the post-conventional phase of development of thought implied by both), we will examine some pre-conditions for creative action from a perspective that sees this not just as a useful output, but also as valuable for life. These conditions can be summarised as some that act as root factors, making creative expression possible.

Firstly, restating creative capacity involves a process of *allowing oneself to be*, escaping from pressure and abandoning strong or close external control over one's own actions to allow an atmosphere of *freedom* that provides sufficient room for manoeuvre for the original idea to be able to arise (Davis, 2004). This is an aesthetic idea as representation of the creative imagination, which awakens thoughts, vitalises the powers of knowledge, and makes one think beyond concepts that are not fully adequate (Kant, 1999). Therefore, the prerequisites for it are the openness and flexibility necessary for exploring various possibilities or courses of thought and action, the possibility of divergence that means not being bounded by the narrow limits of a rigid proceduralism. As Kant said, «though we like to call the product

that bees make a work of art [...] we do so only by virtue of an analogy» (1999, p. 257) as a requirement for art is the will guided by rational reflection. In the midst of this openness, the level of abstraction appropriate to achieving the ideational fluidity necessary for the creative event is favoured. Spontaneity and experimental play were also identified by Nietzsche as features of creative will.

Creative action takes shape as a response to a stimulus, which invites it without causing it, that is, without us being able to say that the stimulus deterministically causes the creative action. This is a markedly individual approach in view of a component of the context that radically invokes the individual and is linked to an element of tension, surprise, awe, and disquiet. In this sense, it not only entails openness to the environment in which the individual finds herself, but also, secondly, that of the subject herself, in other words, an attitude of observation and exploration, maximally active receptiveness, and a spirit attentive to details and to detecting changes in context, which also involves a capacity for improvisation when facing them, flexibility, suspension of rash judgement, and naiveté (Piirto, 2011). Indeed, Heller (2004) considers that process and causal analyses are fundamental to measure the creativity of a talented individual, and that only analysing the product is insufficient, something common in tests linked to psychometric status.

Thirdly, *time* has been recognised as a fundamental element in achieving products of this type, not just because their

creation, the productive task itself, requires it, but also because incubating the idea does too (Davis, 2004; Runco, 2004). This does not entail reducing one iota the importance of sustained *work* and self-discipline for *deliberate and continuous practice* that sometimes leads to outstanding results. The human key to creativity lies in it, and so striving for culture requires hard work and is pitiful and laborious while the gods attend banquets and hold parties (Plato, 1871). Piirto speaks of the «ten-year rule», according to which «one should have studied a domain for about ten years before one can make an original contribution» (2011, p. 10), and also states that 10,000 repetitions are needed before an accomplished creative work can be achieved, as a degree of automation and formal study of the field the creative action is part of is required. Art involves following and applying rules that must be internalised in order to be able to break them at will since, without them, «the spirit, which must be free in art, and which alone animates the work, would have nobody at all and would entirely evaporate» (Kant, 1999, p. 43). But it is vital to note that the «creator creates» (Piirto, 2011, p. 15); she creates *something*, and so the effort of creative work cannot be avoided or replaced.

It is from this perspective that numerous studies intended to determine the factors that intervene in the development of creative projects achieve their results. These studies are divided depending on whether they refer to the personal characteristics of the individual or to features of the context or environment she inhab-

its: the individual's trust in the group, fear of criticisms by others, autonomy, the availability of good models and resources, stimulation of originality, the presence of stressful elements or pressures, competitiveness and family variables (Runco, 2004). Piirto (2011), who focusses her attention on the creative individual and her creative process, identifies five core attitudes that must be developed: self-discipline, naiveté (or openness to experiences), risk-taking, tolerance for ambiguity, and group trust.

## 6. The possibility of transcultural truth: from creative production to unproduced reality

The cultivation of human creativity is vital for recognising one's own identity and the identity of others, since it allows exploration of the expressive possibilities of the subject. Art as the creative production of what is useful and beautiful can be regarded as the *locus of presence*, where: firstly, the subject reveals itself to itself and to others; secondly, others reveal themselves to the subject; thirdly, the world and its effective limits are revealed—as Piirto (2011) states, creativity requires understanding the real limits of the world—; and, finally, it is the place where transcendence can also be possible.

The multitude of human products and forms of expression manifested by cultural diversity raise the challenge of establishing an *adequate model for understanding and managing it* in societies that are increasingly heterogeneous and

at the same time globalised. Each culture exhibits its products and expresses creative action differently, in line with its particular sensitivity, thus underlining the situational nature of the human being. This reality confronts us with the question about *the human possibility of attaining the universal through the individual*, in other words, transcending concrete experience, talking about «truth», even if human reasoning and the perceptions this performs can never be understood as «pure», in other words, as realities on the margin of any perspective, of the singularities of the body in which they are incarnated, or of the historical and social needs of the specific life from which they depart. Inciarte asks whether truth depends on culture or, on the contrary, if there is truth beside it on which all cultures can agree: «Is the truth a human function or is humanity a function of the truth?» (Inciarte, 2016, p. 192).

The possibility of a dialogue combined with the chance of agreement only occurs if there is *something in common, universal, or transcultural that we share*. That is to say, the pre-conditions for dialogue are that we are all speaking about the same thing (on which we agree, even if it is just one signified), even if we then have different opinions about it. In other words, as Inciarte notes (2004), it is necessary to distinguish «what is spoken about» from «what is said about it», the subject from the predicate, from the ways of being with which it is displayed. If we really can do more than just speak and understand each other, it is because we are referring to the same thing. The *intercultural*

model is convinced of this. This model, in this way, goes beyond *multiculturalism*, which stops when faced with the realisation of the growing human plurality, and regards different cultural groups as separate spheres between which there is no authentic rational interchange, so that they coexist in a merely external fashion, as they live in physical proximity. In this case there is a fundamental discontinuity between their ways of being and living (Inciarte, 2016), and as they do not have shared signifieds, there is no common subject of reference.

Inciarte (2016) relates multiculturalism to a *nominalism* according to which realities exist for the human being or for a group because their culture has the word, or the concept—in the conceptualist form—for them. Consequently, it also displays a logical connection with *idealism*, in that it makes the existence of the outside world depend on the representations of our conscience. However, faced with this, Inciarte maintains that «one way or another, beneath or behind the words and concepts, there is reality in the most primitive and common meaning of the words» (2016, p. 198):

Regardless of whether we call this thing before us «mountain» or a «mountvalley» or do not call it anything, and regardless of whether the respective concepts depend on the word, or vice versa, nobody [...] doubts that, whatever it may be, this is a reality and is not a fiction in the ordinary sense of the word; nobody doubts that there is something there with an existence independent of ours.

In other words, the fundamental, original, raw reality demands to be recognised. Although in the era of virtual reality, it is harder to believe that *not all realities can be constructed*. Of course, the signifieds have a cultural component, as what comes to be called «mountain» is to some extent relative because reality is continuous and our concepts are necessarily discontinuous, and, in addition, one's experiences, on the basis of which concepts are founded, differ depending on the needs of the various cultures and the different categories languages show. These are the fruit of a more or less contingent human production, although they can, of course, be regarded as well founded. Even with concepts that put us in direct contact with the real in a much clearer way than judgements as human expression —connections or separations— there is a certain degree of construction that should not be ignored, and in consequence the possibility that they are perfectible and can take shape as in abstractions that are ever closer to the real. Hegel describes as unreal this moment of separation that thought performs, and says that «the action of separating the elements is the exercise of the force of understanding, the most astonishing and greatest of all powers, or rather the absolute power» (2006, p. 136).

With the passage of time and growing cultural development, the things we make tend to become increasingly complex, so that what corresponds to the aspect of human construction is ever greater. Human products inundate everything and display a tendency to become self-referential.

This tendency can make us lose sight of authentic presences, the presence of reality at the margin of conscience. There is only truth if the independent reality of the consciousness is recognised, in other words, something that can be shared, and it is therefore possible to compare and examine cultural products deriving from different traditions. Only then does the task of continually refining our concepts so that they give an account of reality in the best way make sense. Few things are as effective for this as cultural interchange, which makes us take note of approaches to reality that we have not previously taken into account, and presupposes a willingness to review one's own thoughts (Nussbaum, 2005). The journey is the possibility of a deliberate change in attitude towards the receptivity of the other, precisely because it is other, but which can be taken on because it has a common basis with the individual: the same reality that manifests itself to both and affects them at the margin of subjective control.

## 7. The problems of meaning in an opaque culture

The reality that most clearly demands recognition and leads us to recognise it as something shared but experienced personally, is the reality of death, the fact that we will all die. This, the possibility which is the end of all possibilities, and its constant possibility throughout life — which means that life is never entirely removed from death— can act as a starting point for the truth that passes through all cultural products. Death radically invokes

the individuality of the subject, as *the person who can die is, strictly speaking, only one*. The death of others is dramatic and calls for individual action (*drao*) by the person contemplating it, but it continues to be surrounded by culture, in other words, it is constructed. It is enough to consider the culture surrounding the death of others.

The extent to which cultural products make one see, beyond oneself, this reality which imposes itself, signifies how close it is to the real. The largest problem leading to cultural relativism, which closes humankind in on itself and blinds it to other cultures, occurs when one's own culture, which is in some way all-encompassing and includes and covers everything, in addition becomes opaque, and does not allow people to see beyond it, or, to put it another way, it becomes a mirror on itself and does not transcend, setting itself up as the only absolute. It only wants itself. In this immanent structure, the subject becomes trapped in her own construction that she herself has crafted, and then a play of reference to signs occurs, all of them medial, written in a language or code that only individuals from the same culture can decipher, directed for pure self-love, which forms the essence of a holistic metaphysical conception. In the end, a *problem of meaning* appears, as these signs only refer to other signs of the same type and language, other *whats* cut from the same cloth. There is no leap to acquire something else that is not constructed content, something that could give meaning to all of the relative presences that these mediations bring,

in other words, that is the source of their meaning. Contact is lost with the original reality, with the crude fact of death and contingent human reality, and people instead focus solely on their own constructs, to the point that they find it hard to take note of their own distinction in relation to them, as individuals also become the objects of their own productive activity, guided by ways of making dictated by the tradition they inhabit.

Life is full of things we have produced, things so complex that it can be difficult to take note of our distinction of them (the very fact that the question of whether machines can think is asked is a sign of this). If the human being comprehends itself in this sense, it must accordingly understand that whatever is sufficient to satisfy it are also things, perhaps in greater numbers or better quality, even things that are more subtle like certain cultural products in this opaque sense purport to be, which are consumed in museums, the new temples that are packed with people on Sundays. But only giving humankind human things, is to fail to know it.

## 8. Education for creativity and cultural critique

Creativity and cultural diversity are two poles that feedback to each other: not just the multitude of ways of living and being activates this feature through the interchange of the characteristic elements of each culture (*The Guardian*, 23 February 2005), but encouraging creativity through education as a qualitatively valuable product also turns out to be valuable

in a setting with marked diversity because creative action *can bridge the gaps between diverse cultures*. This is the case because *it draws its initial impulse from the stark recognition of the originally existent reality, so that it can find the measure common to all of the diverse whats that comprise different cultural traditions*, in other words: the reality that runs through all of these contents. Creative work has the potential to approach or expose immediacy, so that it works in a particular way, cancelling itself as a construct or as the mediation it is in itself.

The productive imagination involved in this artistic creation is not an eidetic, colourist, reproductive imagination governed by empirically determined laws of association that immediately link it to the sensibility to catch directly what is presented in one's particular lived tradition. The more the created image resembles the objects of the sensibility, the less it is *intentionally* like them and, therefore, the less cognitive power it has. It is more a case of the *symbolic imagination*, which finds a common measure between what can immediately be perceived in one's own tradition and what is purely intelligible that acts as a point of confluence for different cultures and seeks expression here.

The implementation of this creative imagination takes place through the realisation that the human being is not just another thing among the things, it is not used up in the particular *whats* it constructs itself nor, in other words, is it merely the child of the culture in which it

is born. Consequently, its actions do not dissolve in response to stimuli received in accordance with the laws of socialisation that have been operative in it, as happens with technical procedures or material transformations, but instead it is also capable of transcending them, of escaping from the singularity of what it produces in order to focus on the immediate reality common to the different human worlds. Plato situated the mission of human life in comprehending this peculiar way of being, which, while it does necessarily refer to what is not merely particular, only acquires meaning in contact with it.

In this sense, a task of *cultural critique* that passes through several moments is identified as being necessary. Firstly, it is necessary to examine the elements and the works that characterise one's own culture to determine *which components are authentically characteristic, essential, or defining of it and which are not, even if it appears they are*. We often find that secondary aspects of a culture are regarded as basic pillars of a group's identity when, on closer inspection or after a historical review, it is apparent that they are not, and so each one must be given the weighting it deserves (Ibáñez-Martín & Fuentes, 2012). This is, of course, a difficult and sometimes controversial task, as it is hard to set limits and formulate distinctions in a continuum like a group and such distinctions are, to some extent, contingent, even if they are well-founded.

Secondly, it is necessary to consider how appropriate these basic elements of one's own culture are for natural human

tendencies, which are the basis, root, or principal of their volitional dimension and serve to determine actions in accordance with the dignity of the subject (Lewis, 2012). Only through this task of examining the elements that comprise one's own culture on the basis of identifying shared natural tendencies, can it be taken seriously. *Thirdly*, the possibility of establishing real contact with other cultures beyond naïve assimilationist or relativist attitudes. This is so because it is the only way the contact can be based on real dialogue or a rational conversation, given that recognising this objective natural order of human inclinations is a shared starting point from which differences can be analysed. Discussion with the other must start from these *substantial moral commitments*, going beyond a proceduralism satisfied with achieving an ostensibly peaceful coexistence between equals. This proceduralism is static or resistant to change, in that it does not question the elements of one's own identity and is unwilling to examine others' identities beyond complying with the mechanisms of liberal justice.

## 9. Conclusion

By confirming the essentially productive character of human beings and regarding creativity as a human dimension with intrinsic value, linked to the full realisation of the individual's personality, we have analysed how educational cultivation of this feature contributes to the possibility of authentic dialogue with people from different cultural origins.

Given that creative action is a radically individual form of expression, it serves for one's own knowledge, which in turn acts as the basis for understanding the other. This is because the understanding from which creative action starts, which entails a rupture or break with superficial everyday existence, puts us in touch with the *shared reality* which is shown beyond purely human constructs. In other words, given that the creative process derives from or gains momentum from the recognition of an *original transcultural reality*—which on occasions manifests itself dramatically—it can provide the basis of dialogue between cultures. This shared reality that is common to the different forms of expression or different human worlds is the starting point for a process of cultural critique, which is vital to achieve a committed peace in a culturally diverse world.

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# Character and learning habits: definition and measurement proposal

## Carácter y hábitos para el aprendizaje: definición y proyecto de medición

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### Abstract:

This work examines how students' character, habits, and mindset influence teaching-learning processes. Until recently character education was a matter of moral and civic education, but recent research into non-cognitive skills and social-emotional learning reflects how these personality traits give steadiness to school teaching-learning processes. Neuroscience here emphasises the value of executive functions: attention, inhibitory control, and planning are moments where the student unfolds her learning. Classical intelligence (IQ) focuses on analytical understanding, a specific moment; character intelligence focuses on the volitional processes that create the intellectual work that begins in the classroom and ends with planning of study at home. The first objective is to define non-cognitive skills, executive functions, and character, related frameworks that are present in school and family life. After this, the second objective is to assess how the social-family environment affects

these processes. The third objective, in parallel with carrying out the study, is to propose tools to measure these strengths in elementary school: BFQ-N and BRIEF 2. If character education models for learning are proposed, tools should be offered to measure it intended to test the success of the programmes. The conclusion identifies a major initiative: universities, schools, and educational agents should think about a new integrated model of education for their students based on this convergence between character and classical intelligence. School failure and dropout have academic explanations but also family and personal ones. This complex and changing third millennium requires robust and flexible skills to face the challenges of a society that has still not shown us where it is going.

**Keywords:** character, habits, non-cognitive skills, executive functions, social and emotional learning, attachment, mind-set, whole education, 21st century skills.

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## Resumen:

Este trabajo estudia cómo influye el carácter, los hábitos y la actitud del estudiante en los procesos de enseñanza-aprendizaje. Hasta hace poco la educación del carácter constituía un asunto de educación moral y cívica. Ahora, las nuevas investigaciones sobre las habilidades no-cognitivas y el aprendizaje socioemocional reflejan cómo estos planos de la personalidad dan consistencia a los procesos de enseñanza-aprendizaje escolares. Las neurociencias subrayan aquí el valor de las funciones ejecutivas: la atención, la tenacidad y la planificación son momentos donde el estudiante despliega su aprendizaje. La inteligencia clásica (coeficiente intelectual, CI) pone el acento en la comprensión analítica, un momento puntual; la inteligencia del carácter pone el foco en los procesos volitivos que fraguan el trabajo intelectual que empieza en el aula y acaba en la planificación del estudio en el hogar. Una vez definidas las habilidades no-cognitivas, las funciones ejecutivas y el carácter, marcos emparentados entre sí y presentes en la vida escolar y familiar, el segundo objetivo ha sido valorar cómo el

ambiente socio-familiar interviene agudamente en estos procesos. El tercer objetivo ha sido, siempre en paralelo con el despliegue del estudio, proponer las herramientas que midan estas fortalezas en la educación primaria: BFQ-N y BRIEF 2. Si se proponen modelos de formación del carácter para el aprendizaje se deben ofrecer herramientas para su medición orientadas a testar el éxito de estos programas. La conclusión apunta a una iniciativa de calado: la universidad, la escuela y los agentes educativos deben pensar un nuevo modelo de educación integral de sus estudiantes desde esta convergencia entre carácter e inteligencia clásica. El fracaso y el abandono escolar tienen razones académicas, pero también familiares y personales. Este tercer milenio, complejo, cambiante, necesita habilidades robustas y flexibles para hacer frente a los retos de una sociedad que no nos desvela aún a dónde va.

**Descriptor:** carácter, hábitos, habilidades no-cognitivas, funciones ejecutivas, aprendizaje socio-emocional, apego, actitud, educación integral, habilidades para el siglo XXI.

## 1. Character skills

When a child is born, it has a biologically-shaped temperament that will be moulded over time into a character which is the product of habits acquired and shaped by its family, school, and social environment. The purpose of school is, in our opinion, for students to develop a character that is the sum of habits acquired in repeated actions that are

cognitive, ethical, and behavioural in nature. We frame this objective in the later years of early-childhood education and in all of primary education. We refer to learning habits that should take root at the cerebral and neuronal levels. As James realised as long ago as the late nineteenth century (James, 1899; Alcover & Rodríguez, 2012), habits form new and more agile and supple learning-behaviour

thanks to neuroplasticity, a modification of the neuronal networks and of the physical structure of the brain. The result is that the student will establish a second nature, a new cognitive and behavioural functioning that can fix thinking skills of the highest level which will in turn be able to continue learning.

These concepts of habit and character are anchored in a Western tradition that began with Aristotle's philosophy, in particular the *Nicomachean Ethics* (Malikail, 2003; Bernacer & Murillo, 2014), and which is still of great importance today. Training habits as the basis of education is a thread running from Aristotle to neurosciences, passing through James's insights. Good character, in short, is built on the habits and strengths that enable us to carry ourselves correctly through life, achieving our family, career, and civic goals. Furthermore, a good education in citizenship should not ignore the fact that committed, participatory, and critical citizens who can build a quality democracy must be educated to have a good character (Althof & Berkowitz, 2006). Citizenship without civic virtues, in Aristotelian terms, can endanger the sustainability of a model of society. We are, therefore, speaking of integrated education (Gervilla, 2000).

Personality psychology has been describing these processes for decades. We intend to define and propose a means of measuring how character, habits, and personal strengths affect the learning process at school. We say learning process as learning at school is sequential and it is not just

in class that it develops (or deteriorates) but also in family and social settings, while studying, and in the planning of tasks. At present it has to compete with distracting digital activity such as social media (Chen & Yan, 2016).

What is currently happening in school life is that people often forget how character influences learning. The Real Academia Española dictionary defines character as «strength and nobility of spirit natural to someone, resolve, energy.» Character is a personal motor that constantly regulates the *cognition-deliberation-decision-action* sequence (Vigo, 2012). And the moment of deliberation-decision is not just a rational step but is also a choice loaded with the emotions, beliefs, and attitudes in play (Damasio, 1996). In brief (and returning to the pedagogical aspect of James), schools must train students in the skill of knowing-deliberating-deciding-acting and in so doing must take into account the most intelligent emotions, beliefs, and attitudes based on rooted and wise habits that tactful teachers can awaken (Thoilliez, 2013). In the USA, when discussing character education, the *head, heart, hands* trinity is cited (Lickona, 1991). The best thing for teachers and students is to be motivated to study a discipline or task in depth. Doing this in an abstract way and merely through a sense of duty is less appealing. Although a sense of duty can sometimes support passion and motivation, as the final objective is deeply exciting. Every day teachers confirm that students' personal strengths, positive working habits, intrinsic motivations, and self-regulation are positive-

ly reflected in their marks. And indifference, inattention, and impulsiveness, in contrast, lead to academic failure. At a more technical level, it is known that these character skills, acting in different personality areas are, when they converge, partly conditions that make better learning possible:

Throughout this paper we use the term character skills to describe the personal attributes not thought to be measured by IQ tests or achievement tests. These attributes go by many names in the literature, including soft skills, personality traits, non-cognitive skills, non-cognitive abilities, character, and socio-emotional skills. These different names connote different properties (Heckman & Kautz, 2013, p. 3).

## 2. Self-regulation and executive functions

We now return to the relationship between habit, learning, and neuroplasticity. The sciences of neurodevelopment place great emphasis on this: self-regulation is a vital part of learning and as time passes is also part of a balanced and emotionally stable life (Shonkoff, Boyce, & McEwen, 2009). Self-regulation, also known as inhibitory control, is a basic ability to be able to cope in almost all areas of life. At the same time it is one of the foundations of the executive functions (EF from now on) that form the basis of character skills (Diamond, 2013; Diamond & Lee, 2011). EFs depend for their functioning on the prefrontal cortex, the initial and substantial development of which occurs in the first three months of life (McEwen, 2016).

EFs (working memory, inhibitory control, and flexible thinking-behaviour) could be defined as a set of higher-order cognitive-behavioural competences that reason and analyse the different pieces of content at school (and in almost all life contexts). These decisions are often then turned into tasks that must be carried out in short-, medium- and long-term plans. EFs also continue to operate there: in planning and achieving objectives at school, in the family, and in life (Diamond, 2014). To measure character and learning skills in general we propose a tool that evaluates personality overall in these school ages: BFQ-N (part 6). This will be considered below. Nonetheless, there is a questionnaire that specifically measures EF with great precision. We propose a research project to evaluate character skills which, on those lines, seeks triangulation from different perspectives and consequently uses converging instruments. Therefore, we suggest using BRIEF 2 to specifically measure EFs (Gioia, Isquith, Guy, & Kenworthy, 2000).

BRIEF (behaviour rating inventory of executive function) is a scale comprising two questionnaires, one for parents and another for teachers, designed to evaluate EFs in the home and the school respectively (Soprano, 2003, p. 45). See Table 1.

The Spanish version of BRIEF 2 gives the school's perspective, together with the family's, between the ages of 5 and 18. We should recall that in this piece, as stated above in the opening lines, we aim to evaluate EFs at the end of early years education and above all in primary education (Maldonado-Belmonte, 2016).

TABLE 1. Areas of the executive functions explored by the BRIEF scale.

|                                  |                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Inhibition</b>                | Ability to control impulses and stop engaging in behaviour at the appropriate moment.                                                                                                                                                                                                                                                                                                 |
| <b>Shift</b>                     | Ability to make transitions and tolerate changes, flexibility to solve problems and move focus of attention from one topic to another when needed.                                                                                                                                                                                                                                    |
| <b>Emotional control</b>         | The influence of EFs on the expression and control of emotions.                                                                                                                                                                                                                                                                                                                       |
| <b>Initiative</b>                | The ability to initiate a task or activity without being made to do so. This includes aspects such as the ability to generate problem-solving ideas, responses, or strategies independently.                                                                                                                                                                                          |
| <b>Working memory</b>            | The ability to hold information in mind with the aim of completing a task, recording and storing information, and creating objectives. Working memory is essential for carrying out multiple or simultaneous activities, such as arithmetic calculations or following complex instructions.                                                                                           |
| <b>Organization and planning</b> | These are important for problem solving. Organization involves the ability to order information and identify the main ideas or the key concepts in learning tasks or when trying to communicate information, either orally or in writing. Planning involves setting an objective and determining the best route to achieve it, often through a series of appropriately ordered steps. |
| <b>Organization of materials</b> | Another aspect of organization is the ability to order items in one's environment and also to maintain order in work elements, toys, cupboards, desks, and other places where things are kept, as well as being sure that the materials needed to do a task are actually available.                                                                                                   |
| <b>Monitoring</b>                | This has two aspects:<br>a. The first refers to the habit of monitoring one's own performance while carrying out a task or immediately after completing it in order to make sure the proposed target has been attained adequately.<br>b. The second aspect, which the authors call self-monitoring, reflects the child's awareness of how her behaviour affects others.               |

Source: Adapted from Soprano, 2003, p. 45.

### 3. Cognitive and non-cognitive skills and measuring them

Having reviewed the literature on character skills, we will now consider how they are measured. It is widely known that learning at school is not restricted to a pre-set curriculum; it does not just involve the analytic and cognitive incorporation of competences, subjects, and objectives by the students. The function of school is not just to obtain the stark qualifications every student gets and which are summarised in the evaluation by their teachers who certify their command of the curric-

ulum content. Learning and intelligence, understood in the classical sense, are measured by the countless existing tests that establish what we know as the intelligence quotient (IQ). But this strictly academic cognitive intelligence is not all there is. There are also non-cognitive skills — personality, character— that support and underpin academic intelligence, forming a new more comprehensive intelligence. To discuss non-cognitive skills as the basis of academic intelligence seems to be a contradiction. The personality and character features that have an effect on non-cognitive

skills are also cognition although this is in its most volitional and behavioural aspect. However, this name captures everything that is not included in what is strictly referred to as cognitive skills: «non-cognitive is, of course, a misnomer. Every psychological process is cognitive in the sense of relying on the processing of information of some kind» (West et al., 2016, p. 149).

In English these skills are also referred to as soft-skills because of their malleability. These skills can, therefore, be shaped; they are not fixed. They are teachable skills that can be cultivated and measured using various instruments. Therefore, we are facing two types of skills—they could also be called intelligences—that are at the base of learning. The first type (IQ) is more cognitive, analytic, and comprehensive to put it simply. The second type, however, goes beyond what has always been understood as cognitive parcels and they promote good learning outcomes by improving habits: habits and attitudes such as perseverance, concentration, and focus on study as well as positive beliefs in one's own ability that have a significant motivational impact. This is not a new not-just-cognitive type of intelligence that has only been theorised but instead it is a new way of understanding intelligence that can be observed and can be measured in terms of personality and character traits.

For some time now it has been possible to quantify these features from the age of 17, and one of the most important instruments—among others—for doing so is the big five personality questionnaire (BFQ) (John & Srivastava, 1999). In any

case, our interest is learning and the study of character intelligence and social-emotional intelligence at the end of early years schooling and in primary school in particular (5-12 years). To this end, there is a Spanish version of BFQ for students aged from 8 to 17. This is the BFQ-N, a questionnaire that presents the psychometric requirements when the informants are the children themselves (Carrasco-Ortiz, Holgado-Tello, & Del Barrio-Gandara, 2005). In the sixth section, the factors and aspects measured by the BFQ are considered in greater depth.

#### **4. Socio-family environment, educational achievement, and achievement gap**

These teaching-learning processes at school are often based on skills and personality features that predate school and continue in parallel during school years. They are rooted in the family and social environment (Bronfenbrenner, 2009). An environment where the role of the parents and closest carers stands out (Moullin, Waldfogel, & Washbrook, 2014). If children's family environments are unstable, stressful, and chaotic, these character skills might be harmed (Perry, 2009), for example, in the areas of impulsiveness and attention difficulties. In contrast, the homes that are best organised, affectionate, and most predictable facilitate the future students' learning from the first months of life. Thanks to their order, predictability, cohesiveness, and healthy habits, these families facilitate the acquisition of routines and skills along with high academic performance

(Hanscombe, Haworth, Davis, Jaffee, & Plomin, 2011). Nonetheless, these studies should not make us think that high incomes are the primary variable that facilitates the emergence of character skills. It may be the case that the interactions, order, and consistence in the home are found in the attitudes of families with an economic level that is not high but instead is medium or medium-low (Tough, 2014 and 2016). At the same time, there may also be high-income homes that are so chaotic that learning becomes difficult among other reasons because the cultivation of the executive functions has deteriorated (Vernon-Feagans et al. 2016). The family environment and learning in pre-school and school years is shaped by various psychological perspectives and conceptual frameworks. We will consider the ones we regard as most relevant. One clear example of this social-family root that could shape learning is the attachment link which is located in the parental nucleus (in parent-child interactions) and is shaped in the first two years of life. In any case, its subtle and profound reality continues to be present throughout a person's life cycle. Galán-Rodríguez gives a very incisive definition of attachment:

Bowlby proposed a relational concept of the human being (the child enters the world primed to establish a close connection bond with a caregiver figure) supported by a very interesting conceptual framework. The contributions by Ainsworth made it possible to expand attachment theory (conceptually and academically), thus consolidating what appeared to be a productive and promising line of work (Galán-Rodríguez, 2010, p. 581).

This bond with the mother, or the attachment figure, can be decisive and will set the secure or insecure personality of the future student (Bowlby, 1969; Ainsworth & Marvin, 1995). The child will acquire security and confidence in herself and the world, which will be very valuable when she starts school.

Another conceptual framework is the linguistic and attributive style generated by the family and social setting surrounding the child which can be encouraging or discouraging. We refer to the linguistic codes (elaborate or restricted) the child learns at home (Bernstein, 1989) and in her closest settings. Codes that then unfold —positively or negatively— in a way that is imperceptible but constant in the school.

This is where the achievement gap appears. The absence of the following factors can be decisive (National Academies of Sciences, Engineering, and Medicine, 2016, p. 81):

- A healthy life (nutrition, hygiene, sleep).
- Secure attachment.
- Order, cohesion at home, predictability.
- Limits and affectionate discipline.
- Rich linguistic interaction.
- Calmness and family availability in interactions with adults.
- Educational, cultural, reading sensitivity.

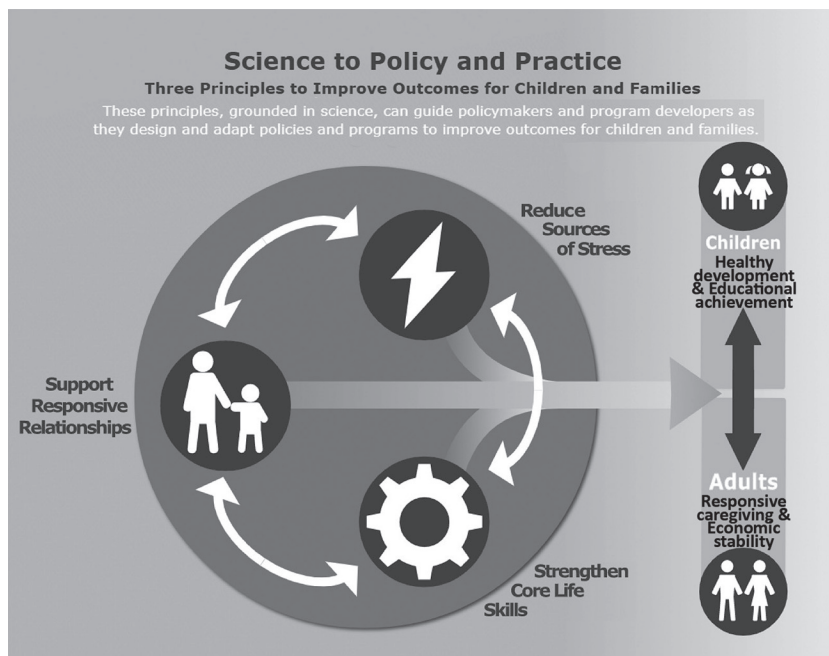
Here are a few examples to illustrate the previous statements: going to public libraries with the children from an early age, joint (non-digital) play at home (Shaheen, 2014), excursions focussing on

nature, and a belief in and support of the school from home (Tough, 2016) are in the reach of any pocket.

Therefore, fighting against the achievement gap involves: a) training families in

matters such as parent-child interactions; training them in b) reinforcing key life skills (including EFs); and c) reducing stress in the lives of children and families (Center on the Developing Child at Harvard University, 2017). See Graph 1.

GRAPH 1. Three Principles to Improve Outcomes for Children and Families.



Source: Center on the Developing Child at Harvard University, 2017.

School plays a vital role but academic failure starts imperceptibly at home in the first months of life. It is again worth noting that there are families on low incomes with great sensitivity towards education and families with high incomes but very little sensitivity in this area. More than a high income, what a home needs is economic stability. And in the view of some scholars, more sobriety than opulence in their daily consumption. The social-achievement gap focusses more on a

proactive family climate than on income and resources, as shown in Graph 1. However, if material resources fall below a certain poverty threshold, no family environment can overcome this adversity. Severe material deprivation is therefore a very influential stress factor.

Bourdieu (1986), a sociologist of education, has studied these structural and structuring constraints closely with his concept of *habitus*. Non-cognitive skills

are part of this great humus that is *habitus*, established by one's social origin. This concept is considerably more complex than what is understood by habit. It comprises aesthetic and cultural perceptions, sensitivities, and inclinations. The leisure (Palmero-Cámara et al., 2015; De Bofarull, 2005) of the privileged classes also has an impact on *habitus*. *Habitus* resides in a culture that is converted into enlightened actions, choices, and attitudes. One of Bourdieu's studies is called *La distinction. Critique sociale du jugement* (1979). To summarise a little, it could be said that there is an ideal social-family *habitus* to integrate knowledge from school which is normally present in families with high levels of culture and income. At the other extreme there is a limited *habitus*, inclined towards being less refined, which is found in families with less prestigious cultural levels and lower incomes, which, because of its simplicity and shortcomings, does not facilitate the absorption of knowledge at school by children. The «language» of school content and subjects is often incomprehensible and distant for these latter families. Children who come from a more prestigious *habitus* understand the language of school perfectly.

Early childhood and primary schools sometimes work on improving these underlying conditions —restricted linguistic and cultural *habitus* and attachment— through the teaching and learning processes implemented, even if it is sometimes very difficult to undo them when they are deep-rooted. We reiterate that it is often the case that students

lack these basic skills, and compulsory schooling assumes they will be present (Kautz, Heckman, Diris, Ter Weel, & Borghans, 2014). This is where several variables in school failure and dropout can be found: in families' internal attitudes, beliefs, perceptions, and involvement with children at an early age. The influential PISA reports have, since 2012, started considering the existence of these skills as part of their task of evaluating 15-year-old students in OECD countries: *Students' Engagement, Drive and Self-Beliefs* (OECD, 2013). And this is perhaps the first step towards different countries regarding the student not as an abstract being who learns but as a complex, diverse person with different needs and backgrounds in different areas: cognitive, psychological, social, and material. These material needs often combine with acute and stressful adversities (unemployment, lack of job security, illness, single-parent families, etc.) that have not just grown but multiplied in recent years given the instability —political, economic, workplace, family— the West has been experiencing since the 2008 crisis.

## 5. Social and emotional learning and self-regulation

In this direction, for several years schools have been promoting education in values that can overcome shortcomings in the social, cultural, educational, and emotional areas that specific students bring from their social-family environment and that can hold back the students' academic development. In recent years, education in values has been

developed using a solid framework from the English-speaking world: social and emotional learning (SEL). Social and emotional learning (Durlak, Dymnicki, Taylor, Weissberg, & Schellinger, 2011; Álvarez-Hevia, 2018) is an umbrella term that once again includes skills that go beyond classical intelligence and which help to lay the foundations for learning from different personality features.

Social and emotional learning is an important step forward in moral education; it helps improve the atmosphere in class and at school and its results can be measured using the Big Five questionnaire mentioned above (John & Srivatsava, 1999). Social and emotional learning comprises five core competences: 1) self-awareness; 2) self-management; 3) social awareness; 4) relationship skills; and 5) responsible decision-making. It has proved very effective in the USA and has had a very good cost-benefit ratio (1:11 per dollar invested) when applied in schooling (Elias et al., 2015). Nonetheless, it is very important to note that the application of this conceptual framework requires systematic integration where a) the home and community, b) the school, and c) the class play an interdependent role. The development of character, habits, and self-regulation is only possible if these educational agents converge. In other words, a calm, opportune, and organised social and emotional learning can only grow from these competences. See Table 2 and Graph 2. We will allow them to define themselves and will note the points that overlap with the objectives of this study:

Social and emotional learning (SEL) is the process by which children and adults acquire and correctly apply the necessary knowledge, attitudes, and skills for understanding and managing emotions, setting and achieving positive goals, feeling and showing empathy for others, establishing and maintaining positive relationships, and taking responsible decisions (CASEL, 2017, p. 3).

Emotional intelligence will also be the basis of more reflexive and ethical decisions at school and in life.

## 6. The big five: personality dimensions

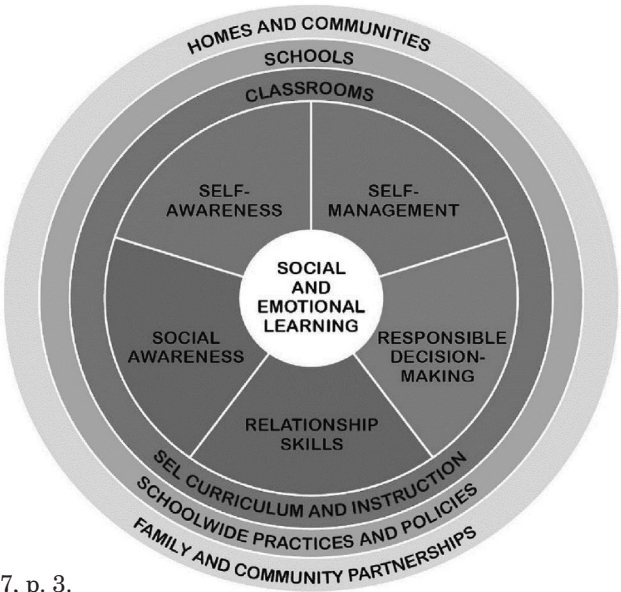
Non-cognitive intelligence and its close relative emotional intelligence, based on character skills and the cultivation of cognitive-behavioural habits, therefore comprise a broad spectrum of competences, skills, and strengths that must work together to direct the cognition-deliberation-decision-action process. The present study focusses on the worlds of school and family (although it has other applications: professional, occupational, community, etc.). These competences and habits must be integrated to achieve results as they do not work if there are just some of them but not others. People advance in character skills if they progress in most areas of each one of them. The Big Five questionnaire measures these strengths and detects shortcomings in them in five personality factors, from different perspectives and in their respective aspects (Table 3). Heckman and Kautz (2012) provide an approximate outline of what non-cognitive skills are and their effects.

TABLE 2. Conceptual framework for systematic social and emotional learning.

|                                                                                                                                                                                    |                             |                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Homes and community associated with the school</b><br><br>+<br><b>Schools with SEL practices in all areas</b><br><br>+<br><b>Classes where SEL is applied in the curriculum</b> | Self-awareness              | Identifying emotions<br>Accurate self-perception<br>Recognizing strengths<br>Self-confidence<br>Self-efficacy          |
|                                                                                                                                                                                    | Self-management             | Impulse control<br>Stress management<br>Self-discipline<br>Self-motivation<br>Goal-setting<br>Organizational skills    |
|                                                                                                                                                                                    | Responsible decision making | Identifying problems<br>Analysing situations<br>Solving problems<br>Evaluating<br>Reflecting<br>Ethical responsibility |
|                                                                                                                                                                                    | Relationship skills         | Communication<br>Social engagement<br>Relationship building<br>Team work                                               |
|                                                                                                                                                                                    | Social awareness            | Perspective taking<br>Empathy<br>Appreciating diversity<br>Respect for others                                          |

Source: CASEL, 2017, p. 3.

GRAPH 2. Systemic Social and Emotional Learning.



Source: Casel, 2017, p. 3.

These researchers have shown that students (and workers, etc.) who have these skills display high performance levels at school and at work, not just in the technical-academic area but also in a good and decisive character that can manage challenges and difficulties, both material and relational based on reasonable emo-

tional stability. This table gives an overview of the main personality traits that are so closely related to character skills, to non-cognitive skills. The table below provides a brief (and limited) definition of these fields and at the same time helps us understand their study, implementation, and evaluation. Table 3.

TABLE 3. The Big Five Domains and their facets.

| Big Five Personality Factors | American Psychology Association Dictionary Description <sup>1</sup>                | Facets (and correlated trait-adjective)                                                                                                                                | Related traits                                                                                               | Analogous childhood temperament traits                                                                                  |
|------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Openness to experience       | «The tendency to be open to new aesthetic, cultural, or intellectual experiences». | Fantasy (imaginative); aesthetic (artistic); feelings (excitable); actions (wide interests); ideas (curious); and values (unconventional).                             |                                                                                                              | Sensory sensitivity; pleasure in low-intensity activities; curiosity.                                                   |
| Conscientiousness            | «The tendency to be organized, responsible, and hardworking».                      | Competence (efficient); order (organized); dutifulness (not careless); achievement striving (ambitious); self-discipline (not lazy); and deliberation (not impulsive). | Grit, perseverance, delay of gratification, impulse control, achievement striving, ambition, and work ethic. | Attention (lack of); distractibility; effortful control; impulse control/delay of gratification; persistence; activity. |

|                                                 |                                                                                                                                                                                                                        |                                                                                                                                                                             |                                                                                                                                                                                                  |                                                                                                                                        |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Extroversion</b>                             | «An orientation of one's interests and energies toward the outer world of people and things rather than the inner world of subjective experience; characterized by positive affect and sociability».                   | Warmth (friendly); gregariousness (sociable); assertiveness (self-confident); activity (energetic); excitement seeking (adventurous); and positive emotions (enthusiastic). |                                                                                                                                                                                                  | Surgency; social dominance; social vitality; sensation seeking; shyness; activity; positive emotionality; and sociability/affiliation. |
| <b>Agreeableness</b>                            | «The tendency to act in a cooperative, unselfish manner».                                                                                                                                                              | Trust (forgiving); straightforwardness (not demanding); altruism (warm); compliance (not stubborn); modesty (not show-off); and Tender-mindedness (sympathetic).            | Empathy; perspective taking; cooperation; and competitiveness.                                                                                                                                   | Irritability; aggressiveness; and wilfulness.                                                                                          |
| <b>Neuroticism/<br/>Emotional<br/>Stability</b> | Emotional stability is «predictability and consistency in emotional reactions, with absence of rapid mood changes». Neuroticism is «a chronic level of emotional instability and proneness to psychological distress». | Anxiety (worrying); hostility (irritable); depression (not contented), self-consciousness (shy); impulsiveness (moody); vulnerability to stress (not self-confident).       | Internal vs. external; locus of control; core self-evaluation; self-esteem; self-efficacy; optimism; and Axis I psychopathologies (mental disorders) including depression and anxiety disorders. | Fearfulness/behavioural inhibition; Shyness; Irritability; Frustration; (lack of ) soothability; sadness.                              |

Source: Adapted from Heckman & Kautz, 2012 and John & Srivastava, 1999.

## 7. Conclusion: learning to think in a more complex future

To summarise, in the world of education it has been apparent for years that it is not enough to have cognitive intelligence (measured by the intelligence quotient), but that it is also vital to emphasise the non-cognitive intelligence that must form its foundation: character skills. These character skills will consequently be present all through life: in secondary school, in higher education, in professional life, in social life, and also as the basis of a stable family life.

Research from the English-speaking world has found that character skills are the basis of human capital (the skills and capacities that create value in the professional world and lead to individual improvements for employers, businesses, a country's productivity, etc.) (Heckman, 2011). But character, good character is also the basis of civic life understood as the result of various aspects working in concordance: the consistency of family life (which always has social returns); participation by citizens; civic virtues; the absence of crime; and its members overcoming psycho-social pathologies (Nucci, Krettenauer, & Narváez, 2014).

We are in the early years of a century which is starting with challenges and increasing complexity in many fields: a new era —the fourth industrial revolution— that demands a new education for a new type of citizen in a changing world. This century requires adaptable and skilled personalities who can manage complexity. Accordingly, many experts speak of

*21st Century skills* (National Research Council, 2012) to emphasise levels of operative intelligence that are as central as critical thinking, decision-making, and problem-solving skills in the line of executive functions. These skills emphasise the competence-based focus and are in demand from international organisations such as the OECD (Ananiadou & Claro, 2009). It is no longer enough to cultivate strategic skills but new citizens must also be equipped with decisive internal attitudes, agile mentalities, and flexible world views.

The mindset —attitudes and beliefs— is therefore embedded in character skills. This is the field of interior convictions, attributive styles, and psychological tone that can either encourage work and intrinsic motivation or can discourage and paralyse. The self-determination theory of Deci and Ryan (2000) who have studied intrinsic motivation fits into this sphere very well. It is also the field of self-efficacy as studied by Bandura (1997). Children, students, and future citizens must incorporate visions of themselves and of the world that enable them to gain in competence, autonomy, and relational capacity without being intoxicated by a sometimes alienating and destructive setting.

Some areas of content from digital media can have a negative effect and also have a distracting and anxiogenic effect (Hoge, Bickham, & Cantor, 2017) through various devices, especially through excessive use of mobile phones and social media. Distractions, lack of attention, and

lack of concentration in the classroom and when studying are ever more acute difficulties education must confront (Scherer & Hatlevik, 2017).

Nonetheless, the prospects for change are encouraging. This is a teachable field. One good example is the studies into passion and perseverance—or grit—carried out by Duckworth (2013). This is a broad topic with different ramifications we cannot consider here. The need for silence, the ability to calm oneself, the ability to enter into the interior of the self to concentrate, be fully attentive, and channel stress could also be included. Our students can be highly stressed, even when very young, and it is important that they attain the stabilising rest that favours learning as Kabat-Zinn (2003) has studied in the broad sphere of mindfulness. Character, attitude, resilience, and inner peace are the preconditions for the best educational attainment. In these final lines we consider psychological stability as one of the foundations of learning that results in overcoming anxiety, fear, sadness, low self-concept, and continuous change in emotional stability. Part of this field can again be measured by the Big Five Questionnaire (BFQ) in its neuroticism/emotional stability personality factor.

The main aim of this work is to put the importance of character intelligence at the centre of the educational agenda. It is necessary to invite educational agents into the debate about these topics. We believe that character intelligence is somewhat neglected; it is not

just moral training but also intellectual training. The first step towards promoting character skills is to establish whether they really influence educational achievement and emotional well-being. The corpus of research into this topic is small but promising (Khine & Areepattamannil, 2016; Roberts et al., 2015). In conclusion, there are various measurement instruments in this field—Big Three, MPQ, Big Nine—but in here we have proposed one of the most comprehensive and thoroughly tested: the Big Five Questionnaire in its version for schools and for the Hispanic world, the BFQ-N mentioned above. We also have the BRIEF-2 instrument, also validated for the Spanish-speaking world and for early-years/primary use. BRIEF-2 is intended to evaluate EFs (executive functions) that we believe are at the core of character skills. This triangulation that opens doors for the voices of families as BRIEF-2 has one version for teachers and another for parents.

## Notes

<sup>1</sup> These definitions come from the *Dictionary of the American Psychological Association* (VandenBos, 2015).

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# Interpretive developments of the philosophy of education in the anglophone tradition: an attempt to systematise them

## Desarrollos interpretativos de la filosofía de la educación en la tradición anglófona: un intento de sistematización

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### Abstract:

The introduction of the analytical method to the field of the philosophy of education led to a first golden age, which, as the method closed in on itself and isolated itself from educational reality, resulted in an epistemological and institutional crisis. In view of that crisis, the generations following that first period began a lively debate on how to move forward. This article, with the aim of considering the positions proposed, derives from this latter scenario. Its method is characterized by two basic elements. The first is a systematic review of all articles on philosophy of education by the main authors in the discipline. The second is a hermeneutic exercise that attempts to compose a unitary discourse

combining the main sensitivities of all of them. This results in the identification of five notable groups that differ mainly in the relationship that philosophy of education must maintain with educational practice and, consequently, in how the philosopher's exercise of education should be considered. This leads into a discussion about whether it is possible to consider all of these positions as integral parts of a whole that seeks to understand the phenomenon of education and improve it overall instead of regarding them as parts in themselves. If there is one reasonably clear conclusion, it is that it seems unlikely that a unifying perspective like the analytical one will reappear and that a dynamic of reciprocal dialogical relations is necessary as a new emerging paradigm.

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**Keywords:** philosophy, epistemology, scientific research, educational philosophy, educational theories, anglophone educational history, educational practices.

## Resumen:

La introducción del método analítico en el ámbito de la filosofía de la educación dio lugar a una primera época dorada que, una vez el propio método se encerró en sí mismo y se aisló de la realidad educativa, originó una crisis epistemológica e institucional. Las generaciones posteriores a esa primera de Israel Scheffler y R. S. Peters, a la vista de esa crisis, comenzaron un amplio y rico debate sobre cómo conducirse en adelante. En ese último escenario nace este artículo, cuyo objetivo es realizar una aproximación a las principales posturas a la hora de comprender el área. El método que se ha seguido está caracterizado por dos notas esenciales. La primera, una revisión sistemática de todos los artículos sobre filosofía de la educación de los principales autores. La segunda, un ejercicio hermenéutico que inten-

tará componer un discurso unitario con las principales sensibilidades de todos ellos. El resultado es la identificación de cinco grupos reseñables que difieren entre sí, principalmente, en la relación que ha de mantener la filosofía de la educación con la práctica educativa y, en consecuencia, cómo ha de pensarse el propio ejercicio del filósofo de la educación. Lo que da lugar a discusión sobre si no es posible pensar todas esas posturas, más que vistas en sí mismas parcialmente, como partes integrantes de un todo que busca comprender el fenómeno educativo y lo mejora globalmente. Pues, si hay una conclusión más o menos evidente, es que no parece que vaya a existir de nuevo una perspectiva unificadora como la analítica y que es necesario una dinámica de relaciones dialógicas recíprocas como nuevo paradigma emergente.

**Descriptor:** filosofía, epistemología, investigación científica, filosofía de la educación, teorías educativas, historia de la educación anglófona, práctica educativa.

## 1. Introduction

It could be said that the philosophy of education<sup>1</sup> started to acquire its own identity in the anglophone settings of Britain and North America in the 1950s (Curren, Robertson, & Hager, 2003; Curren, 2017). First with Israel Scheffler, who delivered an important paper at The American Association for the Advancement of Science—later published in the *Harvard Educational Review* (Scheffler,

1954)—in which he stated that «rigorous logical analysis of key concepts related to the practice of education» was necessary (Scheffler, 1954, p. 9). And later on, with the encounter between Scheffler and Richard S. Peters at the Aristotelian Society in London, which directed the latter's efforts towards PE (Scheffler, 2008; Curren, Robertson, & Hager, 2003). In effect, the collaboration between the two of them at Harvard University<sup>2</sup> and the

subsequent return of Peters to the Institute of Education led to the spread of the analytic methodology across North America and through the United Kingdom and some other parts of Europe. In short, they not only played a key role in the birth of PE, but also its *belle époque*, widely disseminated in the *British Journal of Education* (Richardson, 2002), the *Journal of Philosophy of Education, Educational Theory, Studies in Philosophy of Education* (Curren, Robertson, & Hager, 2003), *Harvard Educational Review* (Evers, 1993) and the *Educational Philosophy and Theory* (Curren, Robertson, & Hager, 2003).

However, by the end of the 1970s, the analytical method had «completely collapsed» (Curren, 1999, xi). This was partly because of the direction it had taken, which led it into excessively technical questions, isolating the discipline from the broader fields of philosophy (Edel, 1972) and educational practice (Curren, 2017), but it was also partly because later generations of educational philosophers came from backgrounds with more diverse training and interests, which, along with this period of decadence, led them to new and fruitful interpretations (Curren, Robertson, & Hager, 2003; Chambliss, 2009; Curren, 2016). This does not mean that the analytical method has been completely extinguished (Curren, Robertson, & Hager, 2003). Instead, what happened was that PE had to reinvent itself. Accordingly, the discipline was enriched with new epistemological interpretations and new methodological proposals. The aim of this article

is to provide an approach to the most important developments in PE. With a few exceptions, these have occurred in the anglophone setting. This approach is not limited to the field of epistemology, where the relationships with other disciplines and with educational practice are located, but, in line with the interests of the authors studied here, it is also open to considerations about methodology, the identity of the philosopher of education, and the continued existence of PE in institutions.

## 2. First development. The philosophy of education as pure philosophy

The title of one of Harvey Siegel's last texts, *The Philosophy of Education and the Tyranny of Practice* (2017), perfectly illustrates the thesis he upheld throughout his career: that PE should be an exercise in pure philosophy. The core of his position can be understood from an epistemological dimension, which Siegel approaches by tracing a parallel with other similar disciplines, or from an institutional dimension, in which he considers the role PE plays as a body of academics with its own interests. We shall consider these below.

Indeed, Siegel observes a clear parallel between PE and the philosophy of science (cf. 1981b, p. 127; 1983). If «philosophers of science, for instance, in general do not attempt to effect practice (though of course in the long historical run they *do* effect scientific practice)» (1981b, p. 127), then, PE should understand that «it is the phil-

osophical understanding of science that philosophers of science seek; and such understanding is regarded as worthy enough to justify the effort» (1981b, p. 127). This observation of Siegel's has two potentially tautological consequences. That PE should not allow itself to be moved by the educational community's pressure for it to be practical (1981a) and that turning it into a practical theory, as though both dimensions were one single thing, is not a solution for revitalising the discipline (1981b). This does not mean that efforts to understand education philosophically do not bring with them improvements and developments in educational practice and it does not even mean that this is something that is not desirable (1981a). This, which is the second consequence, means that the exercise of philosophy of education «must establish and maintain a link with "pure" philosophy» (1981a, p. 15). In summary, the

philosophy of education is, first and foremost, a scholarly endeavor; like philosophy of law, philosophy of science, and other areas of «practical» philosophy, philosophy of education must aim and understand the philosophical dimensions of education — not at improving education, or convincing educators that philosophy might be of value to them—. Of course, if our work results in the improvement of practice, that would be grand. But that cannot be our direct aim (1981a, p. 15).

Consequently, from this argument, it can be deduced that, if it is to gain academic relevance from an institutional perspective, PE must simply concern itself with doing «good philosophical work,

of course» (1981a, p. 15). Siegel believes that the criteria of productivity cannot be applied to this way of understanding PE because to be «expected to be productive is to misunderstand the nature of philosophy of education» (1981b, p. 128). He states that there are tendencies that seek profitability from their research, in what he calls a «survival response», but he believes that, instead of allowing PE to survive or re-evaluate itself by directly contributing to practical improvements in educational practice, what will happen is that it will be subjected to the vagaries of the labour market «becoming anything, no matter how far it strays from its purpose» (1981b, p. 129), which is eminently intellectual.

The integrity of PE then would entail remaining faithful to its most philosophical roots (1981b, pp. 130-131, pp. 133-134). To put it another way, PE «has as its aim the illumination of the philosophical dimensions of education» (1983, p. 36).

### 3. Second development. Randall Curren and the middle ground

Randall Curren, from as far back as the definition he gave in the *Encyclopedia of Educational Philosophy and Theory*, kept a distance from Siegel's perspective. There he writes that PE «seeks understanding of educational matters and to provide practical guidance for educational practice and policy» (2015, p. 1). Nonetheless, and despite the clarity of his proposal, Curren is sufficiently even-handed to understand that the application of a

set of philosophical deductions, as Chambliss established in his work, «might be a sufficient condition for work to be philosophical, but it would not be a necessary condition» (Chambliss, 2009, p. 234). Consequently, educational philosophers who work in the field of Siegelian comprehension are also philosophers of education in their own right.

Having made this proviso, as he said, Curren believes that the crisis in analytical methodology opened the field up to a renaissance, driven by two elements (Curren, 1999; Curren, Robertson, & Hager, 2003). The first is the revival of the history of philosophy, making many thinkers from the past «interesting for us again» (Curren, 2007) and so interest in understanding the philosophical-educational implications of their work was awoken (Curren, 2010, p. 544, pp. 553-556). The second element relates to the increase in university studies and the subsequent demand for teaching of applied or professional ethics, which has resulted in PE taking an interest in its relationship with the adult world, as this world has ever longer contact with education (Curren, 2007; 2015), and it has opened itself to a deontological reflection on education itself and the tasks involved in it (Curren, 2007; Curren, 2005). But despite Curren's misgivings about predicting the future of PE (Curren, 2007), he ultimately believes this could involve two questions: the first is to «work on relatively unexplored but increasingly peripheral problems» (Curren, 2017, p. 3) and the second is to «search outside the fields established parameters for new sources of intellectu-

al “energy” or new research paradigms» (Curren, 2017, p. 3). Regarding this second point, I feel a digression is required to understand what it is that Curren refers to specifically.

Because Curren does not only mark these future paths in the work he is developing in his own words. After his first major text on Aristotle, his writings show at least three paths that his ideas follow. The first is in the new frameworks for comprehension where new ways of doing PE operate. This can be seen in the effort he made to think about eudaimonic theory from psychological perspectives, where he collaborated with professionals from this field (Ryan, Curren, & Deci, 2013). The second is the intuition that analytical methodology can continue to cast light on philosophical knowledge of education if it opens itself to new problems or comes into contact with other methodologies, as observed in *Living Well Now and in the Future*. Here, Curren opens with a chapter where he seeks a terminological approach to the concept of «sustainability» from a first ecological proposal which, however, is open to other perspectives (Curren & Metzger, 2017, pp. 1-7). The third path, seen in his third book, confirms what is suggested in the previous ones: collaboration with professionals from other areas outside education. In *Patriotic Education in a Global Age*, Curren collaborates with the historian Charles Dorn (Curren & Dorn, 2018) as he had previously done with various psychologists and the geologist Ellen Metzger. But what conclusions can we draw from his position?

In summary, that the future of PE would, in some way, involve a decentring movement. On the one hand, forgetting the analysis of the traditional concepts on which the first generation focussed, even insofar as these concepts are studied, to start studying more peripheral questions that they could not consider owing to the scale of the enterprise they had to face or because they did not notice them or simply were not present for certain problems. But there is also a methodological decentring: seeing how academics from other fields have thought about reality to discover its educational implications contemplated philosophically (Curren, 1999; Curren & Metzger, 2017).

#### 4. Third development (and a coda). The philosophy of education between philosophy and education

Nicholas Burbules is, perhaps, the person who best represents the conviction that PE can deliberately improve educational practice without betraying its philosophical roots. And just as he rejects Siegel's position, since he believes that it is a limited interpretation that could again isolate PE (1989, p. 232; 2002, p. 349), he also rejects the contrasting position, which involves forgetting a philosophical interpretation of reality in pursuit of pedagogical efficiency (1989, p. 231). Burbules believes that to answer the question of what makes PE relevant at present, it is necessary to think philosophically in a world that has changed greatly since the years of Scheffler and Peters (1991; 2003). A world which is increasingly globalised, where

students live through new technologies (2002a), and which is postmodern with that doubt that denies that things can truly be known (1995; 2000; 2002b). To put it strictly in the terms of Burbules, PE must be contextualised in the reality it aspires to consider if it is to be truly effective (cf. 2000). Consequently, he proposes a Situated Philosophy of Education (Burbules & Abowitz, 2009): «the philosophical stance of the collaborator» (2002a, p. 354). Or, to put it another way, «the work of the philosopher who is *involved* on site» (2002a, p. 354): the philosopher thinking in the very setting where education happens. Positioned in this way, PE «can illuminate the significant educational dimensions underlying major philosophical problems» (Burbules, 2002a, p. 354). The first outcome of this change in paradigm would derive specifically from this fear of becoming an applied philosophy. In view of this, Burbules believes that it would approximate to the classical ideal of the *paideia*, which combines epistemological, moral, and critical thinking reflections (Burbules, 2002a, p. 356; Burbules, 2008, pp. 273-274). Its inherent critical potential would bring PE to the very heart of educational policies and the problems faced by schools, considering both philosophically. In this way, the philosopher of education would be thinking from specific situations, the richness of which would largely determine the richness of the educational philosophies developed (Burbules, 2002a, p. 356).

Claudia Ruitenberg effectively positions herself in the same paradigm as Burbules, adding a refinement that delves deeper into the discussion about the philosopher

of education's critical distance from the reality she wishes to explore (Ruitenberg, 2014, p. 91). The difference is that what Burbules describes as «situated» is here «embedded». No longer just situated, but instead fully immersed in educational reality. This term was developed in the context of war reporting (2014, p. 91) and she uses it to refer to the philosophy of education. Clearly this closeness of the philosopher to the situation studied introduces the problem of the detachment of her arguments regarding the truth, since, just as reporters sometimes do, she might end up taking the side of one of the groups in the conflict. However, Ruitenberg maintains that the refinement she contributes to the model of Burbules lead to «a dispassionate and unbiased commitment to truth» (2014, p. 91) which, at times, brings her in line with Siegel's position. With the specific aim of avoiding falling into internal contradiction, Ruitenberg maintains that the philosopher must remain vigilant (Ruitenberg, 2014, pp. 92-93) and open to other disciplines that also seek to understand education (Ruitenberg, 2014, pp. 89-91). Having said this, and this is the second note that should be added, she states that it is important not to fall prey to an excess methodologism. It is true that this is important because having a defined method is helpful for competing in funding calls or for convincing private institutions to award grants and funds (Ruitenberg, 2009, p. 315). But, being strictly romantic, Ruitenberg enriches the previous figure of the *embedded* philosopher and the war correspondent with the image of the artist. If she had to compare the figure of the philosopher of education with another parallel one, this would be

the person who regards nature and herself, who listens to what things say, imposes order on them, and writes about them (Ruitenberg, 2009, p. 318).

I believe a brief digression is necessary here to allow for a way of conceiving of PE, which would otherwise have to be in a marginal section, as this position has sufficient content for it, but it is in some way related to this idea of the artist. For Paul Smeyers, in effect, philosophy is more poetry than logic. This, in broad terms, is his answer to the question of how a PE that aspires to be relevant and to give meaning to its author's task should be characterised (2006, p. 2). Smeyers proposes this idea aware that there is a new blossoming in interest in PE, similar to the one that occurred in the golden years, just in a new and alien university context (2010, p. 95-96). And this is not just because of the pressures the modern university puts on new researchers, but also because of the task of PE itself, which no longer faces the challenge of establishing a defined identity for itself, which is what motivated that first generation, but rather the task of improving education (Smeyers, 2010, pp. 93-94; Smeyers, 2011, pp. 292-293). These two circumstances mean that the method acquires a certain relevance, without this meaning it must succumb to «methodolatry» (Smeyers, 2011, p. 296). Smeyers believes that philosophical logic parcels the possibilities of understanding reality into structures of knowledge that *alla fine* are structures of language. Consequently, as language is so decisive, the key to accessing a new way of thinking about reality would be a new language, which creates a new reality (Smeyers, 2006, p.

3-7). Philosophy would then become an exercise in poetic composition where the real would emerge based on new connections that philosophers had been unable to make in previous centuries, bound as they were by the chains of logic. «Philosophy is “a poetic composition”» (2006, p. 8), according to Smeyers, «and the philosopher is described more as an itinerant sketcher, and not as a settled cartographer» (2006, p. 7). Therefore, and in regards to PE, the «philosopher can defy and provoke by offering another reading, another interpretation. However, she cannot impose a compelling argument for either educational practice or theory» (Smeyers, 2010, p. 104). Two consequences of this approach can be identified. Firstly, that it is no longer possible to talk about a single method for knowing educational reality (Smeyers, 2006, p. 12). Instead, methodological flexibility leads to there being as many methods as there are possible readings of educational reality that the philosopher can see (Smeyers, 2006, pp. 12-13), something that would make it more like a «field of “applied” philosophy» (Smeyers, 2006, p. 14). And secondly, that the exercise of PE is politically charged as it not only discerns new ways of educating but also new realities that can be accessed.

## 5. Fourth development. Philosophy as an auxiliary instrument for purely pedagogical thought

In many ways, Gert Biesta shares some elements with the previous perspective. He moves away from Siegel and Curren (Biesta, 2012b, p. 3), arguing that PE must develop in an epistemological

postmodernism (Biesta, 2012a, p. 518) — to which he adds some deconstructionist elements that open it up to a much more marked personalism than the previous positions (1999, pp. 481-483)— and, although he does not wish to focus on the methodological, his reflection is open to collaboration with other disciplines. This last point might be the best one for understanding it. Biesta, unlike the previous authors, does not feel like part of the anglophone tradition, but rather the German one (2015, pp. 4-7). This means that his interest in PE does not comprise the extent to which understanding of education must happen through philosophy (Biesta, 2012b, p. 3; Biesta, 2015, p. 9), as in any gradation of this position, educational responses are clearly philosophical and are hard to incarnate in the local (Biesta, 2011b). Rather, as in all of the German paradigm, he thinks «philosophy is one of the *resources* for conducting theoretical —and for that matter also empirical research— and scholarship in education» (Biesta, 2014, p. 10). This last option opens up a distinct procedural field in which it may perhaps be necessary to think again about elements of educational reality that were thought to be fully understood (Biesta, 2010; 2011a; 2014): what it is to educate, what a teacher, student, or school is, for example. In this paradigm, PE should believe that education is education and not learning (Biesta, 2012a, pp. 583-584), that the educational act is ambiguous and so reflection will always be weak (Biesta, 2012a, pp. 584-586), that it should not become a discourse on the essences surrounding the phenomenon, but instead on the concrete

existences of the people who participate in it (Biesta, 2012a, pp. 586-589), and that interest should focus on the soul and not just on the mind (Biesta, 2012a, pp. 589-590), on truth and not just on perspectives (Biesta, 2012a, pp. 590-591).

Jan Masschelein's thinking derives from a similar context and a similar spirit to the one permeating Biesta's thinking, although at some points Masschelein is also connected to currents in contemporary anglophone thought. Masschelein, in effect, puts the «I» at the centre of philosophical-educational reflection (2011a). PE would then be identified with a form of ascesis. In his own words, «it seeks to transform or modify one's mode of being and how one lives the present» (Masschelein, 2011a, p. 40). He follows Arendt for this process of centring the self, which is an «exercise of/in thought» (Masschelein, 2011a, p. 40) involving the start of PE. This is the reflection the philosopher makes on the process by which he constructs himself publicly, and which is interpreted here as a useful instrument not only for doing one's own discipline but also for guiding others (Masschelein, 2011a; 2011b). Like Biesta, Masschelein believes it is necessary to ask oneself repeatedly about the essential elements of education, given that the answers already given were directed at the essences of the terms they analysed, but not their existence and, more specifically, at the existence of the philosopher herself (Masschelein, 2011b, p. 40). The manner in which these questions are asked is like the one Biesta proposed. Not seeing philosophy as the framework for thought in which it is

necessary to move, but as another instrument in the effort to ask about education from education (cf. Masschelein, 2014, pp. 208-209; 2014, pp. 197-210).

## 6. Fifth development. The philosophy of education as pure praxis

Biesta and Masschelein's proposals, despite them showing a certain reluctance to think about education from exclusively philosophical premises, maintained a certain metaphysical position. Even though from existentialist and clearly pedagogical positions, they continued to see it as necessary to ask the classical questions about the elements of education. However, it would be difficult to say that the authors who followed continued with something similar, given that they either have excessively critical assumptions, making them see PE solely from institutionalist perspectives, or excessively practical ones, leading them to surmise that PE has no purpose if it does not have a practical application.

The person who has best described, in a critical context, the relationship PE maintains from an epistemological and institutional perspective is Peter Roberts. For Roberts, PE is «a way of life» both philosophically and economically. In other words, it is a philosophical way of being, where one's attention is always directed at the educational, but, it is also a basis for life (Roberts, 2014). Nonetheless, he experiences a reality check when observing himself and his colleagues in the Australian Philosophy of Education

Society, who do not find work in their field of study or find it in posts that have little or nothing to do with this discipline (2009). He sees that the emerging situation of the university guided by neoliberal policies (Roberts & Stewart, 2016, p. 239-243), and the situation of the discipline itself, institutionalised through conferences, journals, and manuals (2014), makes impossible a detached life dedicated to reflection on education. The consequences for PE are clear. Despite a revival of the discipline, PE has been pushed out of syllabuses (Roberts, 2014; Roberts, 2016, p. 246-247). Faced with this panorama, Roberts is convinced that the classical version of the philosopher will not return, but, if only to attract students, PE should become practical in an institutional sense; it should show that it is important for teachers and remain alive in teacher training programmes (2014).

This is not the case Morwenna Griffiths proposes in her educational philosophy. However, she does provide a hermeneutics of the principal educational philosophies and concludes that most of them contain a certain concern for how to influence political-educational decisions. If I did not write this when discussing the authors, this is because it was a peripheral aspect of their doctrines that could be deduced from the fact that they were distanced from Siegel's position. Or, from a different perspective, if I bring it up now, it is because the thinking of Griffiths insists on this point more tenaciously. Griffiths notes that there are various tensions within the field of PE that are still unresolved (2014, p. 6), among

which stands out the question of whether the discipline should be understood as a process, where this would be «the act of doing philosophy» (2014, p. 7), or a product, from which a particular perspective can be expected that gives meaning to reality and makes it possible to act on it (2014, pp. 7-8). In any case, Griffiths believes that it is necessary to carry out a form of PE related to the close settings in which the philosopher moves, a more local type of philosophy, which is not just born from a philosophical position in the world, but from «multiple conversations and dialogues» (2014, p. 8). Only in this way will PE be able to influence political decisions (Griffiths, 2014, pp. 14-16), «improving the education of children and students» (Griffiths, 1997, pp. 192-194), thanks to philosophers who are capable of dialogue with politicians (Griffiths, 2014, p. 16) and the agents involved in education (Griffiths, 1997, pp. 199-200).

## 7. Conclusions

Having completed this overview, and in view of the variations undergone by anglophone PE since the crisis in the analytic perspective, it appears that two ideas can be drawn from it. The first is that philosophers of education themselves experience the observed plurality more as a battle to elucidate the method that unifies the approaches to the phenomenon of education and the group of academics, as the analytical focus once did, rather than as a strength. The second, which derives from the first, is that it does seem likely that a focus will emerge that has the same force as the analytical method

of the 1970s. But, from this realisation in particular, two questions arise with which I intend to close this study, albeit not definitively.

The first question: are these variations definitely incompatible from an epistemological, methodological, and institutional perspective? As I have already suggested, it appears that it would be necessary for one of the perspectives to prevail in order to unify all of the efforts and gain epistemological and institutional presence in the academy. This can be seen perfectly in the two extremes of the variations analysed, despite the different intermediate gradations. Siegel, who rejects the practical application of its “purely” philosophical postulates, and Burbules, Smeyers, and Roberts, who see practical application as almost necessary for various reasons. Nonetheless, it seems to me that the key-stone for a richer understanding of PE lies in Curren’s intermediate view. That the practical application of PE is a sufficient but not necessary condition. Ultimately, and although it is not explicit in his work, it appears to be clear that there are dimensions of the reality of education that require an understanding that helps cast light on the phenomenon of education and from which an ulterior practical proposal does not necessarily have to be deduced. Or, to put it in more phenomenological terms, if the human being is a mystery and at the same time is educable, then PE cannot deduce practical conclusions for all of the dimensions that make up the human being and can be interpreted from a pedagogical perspective. Consequently, all of the paths for approaching the phe-

nomenon of education are necessary in view of the acquisition of a more in-depth knowledge of this phenomenon, which, albeit not partially, does have an overall impact on an improvement in the educational process. But, however it may be, the variety of methodologies comprise a set of instruments in the service of a group of academics. In this way, it makes sense to speak about a body of academics on the path to seeking the truth—which might or might not have practical consequences—through dialogue, instead of speaking of an essential incompatibility or a fight for the prevalence of one of them. I will return to this later.

Because the second question, which derives precisely from affirming that various methodologies can coexist without harming any of them, is: how can a harmonious dynamic be imagined? Even at the risk of seeming overly simplistic given the limited space remaining, I think it is necessary to make three essential points.

The first is that, in light of Smeyers’ veiled critique of the hermeneutic methodology, it is necessary to re-evaluate this focus (2011). Smeyers’ critique stated that the interpretation of authors responds to the whims of the author performing the hermeneutical exercise (2011) rather than to the agenda of politicians or the educational needs of the moment. But the thesis of Smeyers is not so much devalued because philosophers of education make interpretations of other *pure* philosophers to articulate essential points in their postures, but rather because hermeneutics

keeps alive the internal debate of PE with philosophy itself and with the postulates of earlier PE. In other words, the absence of hermeneutic exercises separates PE from its philosophical and theological setting —both ancient and contemporary— and from its most specific branch. It is another matter, and Smeyers discusses this wisely, that many of the hermeneutics performed have been deficient. Hermeneutics that focussed on texts which had the narrowly educational as their subject matter, instead of interpreting them in the light of other works by the same author covering important topics for understanding the educational, such as theology, metaphysics, anthropology, or gnoseology. Having said this, hermeneutics not only keeps alive the combination of PE with a previous broader or more specific tradition but it also brings new perspectives with which to approach education. This is the second point.

PE must unavoidably face education from two main perspectives. On the one hand, it must return to the concepts the first generation already faced. This is because, for reasons relating to the methodology they used and the historical period in which they were writing, they were unable to see certain aspects that are now decisive or that need to be reinterpreted in light of the new times. Also because the new sensibilities of the new educational philosophers can allow nuances that had gone unnoticed. Ultimately, all of other philosophical methodologies would come into play here, which, like hermeneutics and analytical philosophy, serve to confront

the phenomenon of education. Not just these other specific methodologies, but also the cosmological, anthropological, gnoseological, or moral interpretations that have gradually isolated them from educational reflection in favour of a certain psychologism and innovationism, and which feed the understanding of education from new directions. On the other hand, it is necessary to approach as yet unexplored aspects of the phenomenon of education that derive from current contexts and problems. Here, it becomes necessary not just to interpret new authors in light of the philosophy of education or the application of the analytical methodology to new educational problems, but also to have the awareness to apply new methodologies to new elements, to localise these aspects and the dialogue with other disciplines and agents involved in education. All of this is, I emphasise, in the interest of a better understanding of the phenomenon of education, which could result in an improvement of practice.

But, and this is the third consideration, all of the previous forms of PE must be regarded as different ways of approaching reality that, in the quality of their internal relationships, enable a more in-depth knowledge of educational reality, resulting in improved practice. In effect, education can be studied in itself with a solely theoretical aim and this does not have to lead to the isolation of the discipline if this exercise coexists with all of the other variations that are more concerned with practical improvements in education. The same could be said of

philosophers interested in the practical application: that as long as the philosophical premises of those who envisage practical consequences are, in effect, rigorous philosophical exercises and not mere prologues to rhetoric, then their position is needed. It is in the ability of philosophers to articulate the advances made by all of their colleagues—in texts they write alone or in sincere and detached collaborations with them and with other agents—that the future of the discipline is at stake. To put it another way, it is in the reciprocal epistemological relationship between the different variations that we could speak of a PE that is healthy, consistent, complex, and necessary for education. Because education, despite the rise of empiricism that can be seen in academic publications, it is not a conclusive and closed exercise: nobody knows the magic key to teaching and learning. For this very reason, the fact that there is a body of knowledge that enquires into each and every dimension of education, makes it possible to seek answers that might not appear in the data and that help educate with a better developed critical sense. Because, and this does seem to be clear, an educational practice guided by local data, fashions, and needs does not seem like it could raise the educational levels of different nations.

In brief, the plurality of the understandings of PE that marks the current moment should be seen as a strength which, if it can be integrated into a comprehensive framework whose dynamic is overseen by reciprocal relationships of academic interchange, will not only be

able to improve the different variations, but, taken as a whole, educational practice as well.

## Notes

<sup>1</sup> PE from now on.

<sup>2</sup> This, incidentally, led to two interpretations of the same programme in which Peters' tendency towards ethics (McCulloch, 2002), in *Ethics and Education* (Peters, 1963), and Scheffler's tendency towards gnosis, in *Conditions of Knowledge* (Scheffler, 1965), were observed.

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# Notes

**María Moralo & Manuel Montanero**

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Changes in Psychology students' workload due to alignment with the EHEA



# Learning with and without errors in students with ASD

## Aprendizaje con y sin error en estudiantes con TEA

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### Abstract:

Errorless learning is one of the most widely used didactic approaches in the teaching of students with Autism Spectrum Disorders (ASD). The main aim of this work is to analyse the performance in verbal labelling and sequential thinking tasks of children with ASD who follow this method. The activities were structured using a protocol approach of discrete trials training (DTT) with manipulative materials (cards to be matched or ordered). Two teaching approaches were compared: one comprising errorless learning (in which physical prompting was used to prevent the subject from making mistakes) and one involving errors (in which mistakes were permitted and corrected, with the appropriate help). Observation records showed significant differences in sequential thinking tasks, where less skilled subjects achieved poorer results in errorless learning conditions. The approach based on a structured sequence of feedback support

when the student made errors led to a slightly higher number of correct answers but also some repeated errors. Finally, the implications of these results for the design of learning sequences of students with ASD are discussed, along with the main limitations of the study.

**Keywords:** errorless learning, self-regulated learning, feedback, verbal labelling, sequential thinking, autism, special education classroom.

### Resumen:

El aprendizaje sin error es uno de los principios didácticos más extendidos en la enseñanza a personas con trastornos de espectro autista (TEA). El principal objetivo de este trabajo es analizar la ejecución de tareas de etiquetado verbal y pensamiento secuencial de niños con TEA, siguiendo dicho método de aprendizaje. Las actividades estaban estructuradas con un formato protocolizado de *entrenamiento en ensayos separados*

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con materiales manipulativos (tarjetas que debían emparejar u ordenar). Se compararon dos condiciones instruccionales: una de aprendizaje sin error (en la que se empleaba la instigación física para evitar que el sujeto se equivocara) y otra con error (en la que se permitía cometer errores y rectificarlos, con la ayuda adecuada). Los registros de observación mostraron diferencias significativas en las tareas de pensamiento secuencial, donde los sujetos de menor competencia consiguieron menos aciertos en la condición de aprendizaje sin error. En general, la propuesta instruccional basada en una se-

cuencia estructurada de ayudas de *feedback*, cuando el estudiante se equivocaba, generó un número mayor de aciertos, aunque también un número ligeramente superior de errores repetidos. Finalmente, se discuten las implicaciones de estos resultados de cara al diseño de secuencias de aprendizaje de alumnos con TEA, así como las principales limitaciones del estudio.

**Descriptor:** aprendizaje sin error, aprendizaje autorregulado, *feedback*, etiquetado verbal, pensamiento secuencial, autismo, aula especial.

## 1. Introduction

Self-regulated learning activities, in which students have the chance to review their errors with the necessary help, are very important educational experiences for people with and without disabilities (Boekaerts, 1999; Cuskelly, Zhang, & Gilmore, 1998; Vieillevoys & Nader-Grosbois, 2008). Students with autism spectrum disorders (ASD), however, show distinctive *executive functioning* disorders (Burgess, 1997) that limit their ability to adapt to changes in their environment and self-regulate their behaviour (Martos-Pérez, 2005; Rivière & Núñez, 1996; Russell, 2000). These difficulties manifest themselves in stereotypical and repetitive behaviour in various activities in everyday life and in a lack of strategic behaviour; that is, sequences of actions consciously aimed at attaining a goal (Kaplan, 2008; Ozonoff, Strayer, McMahon, & Filloux, 1994).

Nonetheless, with the appropriate educational and environmental support, people with ASD can develop self-regulatory capacities at varying levels depending on their disability and their particular needs (Martín, Hernández, & Ruiz, 2007). To do this, it is necessary to create a sufficiently predictable and structured environment with visual cues and other types of material and personal resources to facilitate the anticipation and comprehension of activities. In addition, interventions adapted to meet the needs of each individual may be required, whether these be biomedical, sensory-motor, psycho-educational, or behavioural (Weiss, Fiske, & Ferraioli, 2009).

This last type of intervention is principally aimed at facilitating functional learning of skills using various modelling, chaining, immediate reinforcement, etc., techniques that have proven to be useful

with students with ASD (Martos-Pérez & Llorente-Comí, 2013; Mulas et al., 2010). The activities are structured in brief learning sequences that are repeated as often as needed, as is done in the *discrete trial training* (DTT) approach (Lovaas, 1981; Thomson et al., 2009; Smith, 2001).

One of the principles that frequently guides the design of these activities is *errorless learning*. This essentially involves providing a type of feedback in highly structured learning tasks in such a way that at all times the student is prevented from making errors (Touchette & Howard, 1984). This principle derives from the fact that people with ASD tend to *fix* in their memory any errors they make in the learning process to an unusual extent, to the extent that it can get in the way of the acquisition of certain skills, such as reading, or the acquisition of concepts, and so it is advisable to avoid errors (Etzel & LeBlanc, 1979).

So, for example, in the feedback technique known as *most-to-least* (MTL), the educator sequences learning aims in more specific or progressively more complex actions. The teacher starts by physically guiding the process of doing a task, directing the student's hand with her own while performing the action so the student does not make any errors. The physical help is gradually withdrawn as the action becomes automatic, and backward chaining begins. The physical guiding is re-introduced as often as necessary until the objective is achieved. If the task is broken down into short attempts (as in the DTT approach), the chances of failure are reduced (Smith, 2001).

In comparison with other similar strategies, like no-no-prompt (in which students are permitted to make errors up to two consecutive times when performing a task) or the instructive-feedback technique (which does not explicitly avoid errors), it has been shown that MTL reduces the probability of failure and increases the likelihood that the skill learnt will be retained over time, but it does not favour autonomy and self-regulation of the learning process and can be less effective than other alternatives (Fentress & Lerman, 2012).

Despite their extensive use in interventions with people with ASD, we do not yet have sufficient proof of the effectiveness on curriculum content of errorless learning approaches. The strategies described above benefit some subjects but not others, this depending on a range of factors (Delmolino, Hansford, Bamond, & Fiske, 2013). The studies that report positive results usually integrate errorless learning into relatively broad intervention programmes or technologies, such as ABA-applied behavioural analysis, that combine various types of strategy (Artoni et al., 2017). Consequently, it is difficult to discern what influence it really has on results. The data are often of poor quality and also generally allude to behavioural or socio-communicative skills (Mottron, 2017). The limited research that has specifically compared trial and error learning with errorless learning in certain curriculum tasks (such as basic arithmetic operations) has even reported notably worse results for the latter approach (Leaf et al., 2010).

Consequently, it appears to be necessary to continue research into the conditions that facilitate the efficacy of this type of educational procedure, as well as the risks or opportunities for learning that error represents for students with ASD. Accordingly, this work has two main aims: firstly, it aims to analyse the effectiveness of a highly structured process of errorless learning among students with ASD in specific curriculum tasks (namely, verbal labelling and sequential thinking). Secondly, it aims to explore the efficacy of an alternative procedure for identifying and self-correcting errors, with material and verbal help that can be implemented easily in special classrooms.

## 2. Method

### 2.1. Participants

Four students with Autism Spectrum Disorders (ASD), aged between 5 and 8 and educated in the *special class* of a mainstream primary school, took part. Once the appropriate consent was obtained and the ethical and confidentiality commitments were signed, the students were selected by convenience, in accordance with the following criteria:

- Having an ASD diagnosis (with a score of under 50 on the IDEA scale) in an official educational psychology report prepared by the local educational psychology team, without other intellectual or sensory disabilities also being present.
- Being aged 5 or over and under 9 and studying in the third year of early childhood education as a minimum.

- Displaying oral language with sentence structure.
- Having literacy skills and the capacity to analyse language.

A teacher who specialises in therapeutic pedagogy from a public school in Badajoz also took part in the study. As well as over five years' professional experience in educational support tasks for students with ASD, she has broad pedagogical training in a variety of educational support techniques for these students, in particular teaching curriculum content.

### 2.2. Design

The research was based on a multiple observational design. Two working groups were set up, depending on the curriculum level of the subjects. The level I group comprised 2 children (J. and R.) of 5 and 6 years of age respectively, and one level of curricular competency: year three of early childhood education. Level II comprised a boy and a girl (A. and P.) of 7 and 8 years of age, with a curricular competency level of year one of primary school.

The sessions took place in a *special classroom* for students with ASD, individually and face-to-face. They focussed on verbal labelling and sequential thinking tasks. The subjects' performance with two teaching approaches (*trial and error* and *errorless*) was compared using the number of correct answers and errors in each task. The activities were structured using a *discrete trial training* protocol approach with manipulative materials (cards to put in pairs or in order). In the *errorless* learning mode, if

the teacher noted that the student was about to make a mistake, she used physical guidance, moving the student's hand towards the correct card. In the trial and error learning approach, however, students were allowed to make mistakes

and a variety of material and verbal help was provided (listed below).

As two competence levels were worked with, a total of 8 learning activities were designed. These are summarised in Table 1.

TABLE 1. Distribution of learning content in the teaching approaches.

| Approach | N | Errorless learning                     |                                                                                      | Trial and error learning               |                                                                                       |
|----------|---|----------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------------------------|
| Task     |   | Verbal labelling                       | Sequential thinking                                                                  | Verbal labelling                       | Sequential thinking                                                                   |
| Level I  | 2 | 16 concrete and familiar concepts.     | 8 series of 3 geometric shapes (one joint variable and another differentiating one). | 16 concrete and familiar concepts.     | 8 series of 3 geometric figures (one joint variable and another differentiating one). |
| Level II | 2 | 8 less concrete and familiar concepts. | 4 temporal sequences of 5 to 6 sketches representing everyday events.                | 8 less concrete and familiar concepts. | 4 temporal sequences of 5 to 6 sketches representing everyday events.                 |

Source: Own elaboration.

The content of the activities (of equivalent difficulty in both approaches) had not previously been covered in class. All of the students took part in both teaching methods, starting with the errorless learning method. This decision was taken to avoid potential extraneous variables relating to learning new strategies, as the students had always followed the errorless learning method in the classroom when working on verbal labelling and sequential thinking tasks with other conceptual content.

## 2.3. Materials

Various cards and work sheets were designed for doing the learning activities in both the errorless and trial and error approaches. These are described below:

### 2.3.1. Verbal labelling tasks

At the first level, 32 concrete and familiar concepts were covered in verbal labelling: 16 for the errorless approach and another 16 for the trial and error approach. In both teaching approaches, the words used to express these concepts had the same number of syllables (from 2 to

4). To prevent reading errors when using the direct lexical route, none of the words in either teaching method started with the same syllables. Each of the concepts selected was represented with a picture and a word written on two laminated cards: 16 picture cards and 16 word cards for each teaching method. In addition, for the trial and error learning method, another 16 *correction cards* were prepared, with the image from the picture card and the concept from the word card below it. In other words, the final result of associating the picture card with the correct word card.

At level II, another 16 concepts were covered (8 in each approach). These were also selected at random, but were more abstract and less familiar than at level I. As the subjects had already acquired based literacy skills, the dynamic of the activity was also somewhat more complex. The concepts were worked on in pairs, matching opposing concepts. Instead of representing one single concept, as in the previous level, the picture cards showed a pair of antonyms (for example, in the case of the *light* and *dark* concepts, there would be a dark red book on one card and a light red book on the other; two other cards would show a light blue comb and a dark blue one, etc.). In the trial and error teaching approach, flash-cards were used instead of the word cards (for each pair of concepts to learn). The flash-cards represented the concepts using images based on the *Picture Exchange Communication System* (PECS). For example, for the concepts of light and dark, the flash cards were two laminated cards, one dark

grey and the other light grey. All of the flash-cards are stuck to a sheet of blue cardboard to make it possible to identify them clearly.

### 2.3.2. Sequential thinking tasks

To teach sequential thinking at level I, 16 work sheets were used, each showing a series of 3 geometric shapes (8 cards for the errorless learning approach and another 8 for the trial and error approach). The series of geometric shapes shared one common variable (the geometric shape) and another differentiating variable (the colour). At the top of the card, there was a model-series the students have to try to repeat (for example, three squares and inside them a blue triangle, a green triangle and a red triangle). At the bottom of the card there was a block with nine empty cells (a similar pattern to the one in the upper part, but empty), where the student had to repeat the model series. The series to work on each day were picked at random. In addition, for the trial and error learning approach, 4 correction series were prepared with the correct series of geometric shapes already in place and stuck down.

Instead of geometric shapes, level II involved working on sequential thinking with 8 temporal sequences from a story (4 sequences for each method). To do so, the *Schubi 1 and Schubi 2 temporal sequences* speech therapy material was used with 5 and 6 cartoons per sequence. A series of cartoons portrayed, for example, a man sitting down on a sofa to read the newspaper and sitting

on a cat because he has not seen it. The allocation of sequences was done at random, but using the same number of cartoons in each method. In addition, in the trial and error learning approach, *correction cards* were prepared with the sequence of cartoons already in the correct order.

### 2.3.3. Evaluation record

To evaluate the process and learning outcomes of the two teaching methods (trial and error and errorless), a direct observation record was kept. This comprised a table on which the name of the student, session number, and type and level of the task to be worked on were listed before the start of the session. At the end of the session, the number of correct answers given by the student was noted down. We also recorded the number of new and repeated errors and how often effective help (leading directly to a correct answer) and ineffective help (leading to a new error) were given. Finally, in a small space provided for this purpose, qualitative comments were noted down as required about the task in which the students made some kind of error (whether it was an initial task or a review one; which particular concepts or sub-tasks errors happened in; what type of help in accordance with the sequence set out in Table 2 was effective; and possible unusual behaviour or critical incidents).

## 2.4. Procedure

### 2.4.1. Verbal labelling sessions

Each level I student worked individually on verbal labelling tasks for 4 sessions per week up to a total of 32 (16 ses-

sions with errorless learning and another 16 with trial and error learning, including the revision activities). At level II each of the students performed 3 sessions per week (one day working on classifying concepts, one on identifying them, and another on naming them). In total, there were 24 sessions (12 with errorless learning and 12 with trial and error learning). Each session lasted approximately 5 minutes.

### Level I

The procedure for carrying out the sessions at the lower level of difficulty was always the same:

- 1) The first picture card was presented and the corresponding word said aloud, then the word card was presented straight away, and the sequence was repeated with a second word.
- 2) The 4 cards were removed from the table and the two picture cards were again presented, while at the same time each word was said aloud.
- 3) A picture card was presented with the instruction «put it down», so the child would place it below the corresponding picture card, and then the subject was offered the other word card to do the same.

In the errorless learning method, the student was not permitted to make mistakes when matching the word card to the corresponding picture card. Before the student could link them incorrectly, the teacher would take his or her hand while repeating the written word, and would then move it towards the correct

card or position; once they were correctly linked the student would be asked to read it.

In the review activities, the working dynamic was different. The students were shown two picture cards (with the teacher reading the verbal label aloud) and a single word card that the student had to link. After associating the first picture with its word, another picture card was placed on the table so that there were always two pictures present. This process was repeated until all of the words previously covered had been reviewed. As before, the student was not allowed to make any errors when associating the word card with the corresponding picture card, and so before the student could link them the teacher would take his or her hand and guide it towards the correct position while repeating the written word.

In the trial and error learning approach, the concept introduction sessions followed the procedure described here for the errorless learning method. The only difference was that possible errors in the drawing-word association were not prevented. When this happened, they were shown a different card (*correction card*), which showed the correct drawing-word relationship, so that they could correct it. If they did not correct themselves, the teacher would provide simple help by focussing attention on the card. When the students made the correct association, they would be asked to read the word.

During the review, the working dynamic was also very similar to the one

described for errorless learning, with the exception that, if the subject made a mistake, the teacher would show the correction card. This process was repeated until all of the words covered in previous sessions had been reviewed, and so, as the sessions advanced, the number of words to review increased.

## Level II

At the more advanced level, the sessions were split into three phases: classifying, identifying, and naming opposite concepts.

- In the classification phase, two trays were provided into which the picture cards being worked on would be placed (for example, the wide-narrow concepts). The teacher would first show a flash card with a drawing representing the concept (wide), say the name of the concept aloud, and put the card in one of the trays. Next, she would show the other flash card (in this case representing the concept narrow), say its name aloud, and put it in the other tray. After this, the teacher showed each picture card and said its name aloud, but the student would put them in one tray or the other, as appropriate until all 24 picture cards had been used (12 representing the concept narrow and the other 12 the concept wide, in this case).
- Once the students had done the classification without errors, they moved on to the identification phase. Using the instruction «give me...», the student was asked to hand over one of the cards from one concept or the other (they

had already been classified into trays), to be sure the student had correctly absorbed the verbal label corresponding to this concept. Continuing with the previous example, the instruction would be: «give me wide», «give me wide», «give me narrow», etc. The students were asked for the picture cards one at a time and at random until they had all been handed over.

- Finally, the naming phase took place, in which the students themselves said aloud the name of the concept, before placing it on each of the trays.

In the errorless learning approach, the student was not allowed to make errors in any of the phases; before erroneously classifying or naming a picture card the teacher would take the student's hand while saying the written concept aloud and physically guiding their hand towards the correct option.

In the trial and error approach, if the students made a mistake in the classification, they would be shown a correction card (different from the previous ones), which showed whether or not it corresponded with this tray, and they would be given time to self-correct. If the student did not do this, more help would be given.

#### 2.4.2. Sequential thinking sessions

Sixteen sequential thinking sessions were carried out at each level (8 with each approach), divided into two sessions of about 5 minutes per week. In the second weekly session, the series from the first one was covered again.

### Level I

At the lower difficulty level, before starting the activity, it was reviewed by jointly pointing (holding the student's finger) at the model-series to be done, which appeared at the top of each card. For example, with the instruction «blue, green, red» (while identifying each shape in the model series), the teacher would say «now put it down» (letting go of the student's hand so he or she could start working). Next they were given the necessary stickers to reproduce the series (several sheets with stickers of the shapes that made up the model series, but out of order). As the sessions advanced, more sheets to choose from were provided.

In the errorless approach, before unsticking an incorrect geometric shape from the sheet, the children were redirected towards the model (accompanied by the instruction: «blue, green, red») so they could visualise the correct colour and the movement was modelled so that the correct colour would be selected.

In the trial and error learning approach, when they were finishing the series, in other words, when the students had stuck down three shapes, they would be helped to put it just above the pattern they were completing (giving them the instruction «take it» and showing them the correction series). This step was done whenever a series was completed, whether or not there was an error. If they did it well, they were given reinforcement (for example, «how have you done it? Well done, that's great!»).

If students spontaneously realised there was an error, they were allowed to correct it, removing the shapes where they had gone wrong. After this, the correction pattern was removed so that the students could only place the geometric shapes by following the example of the model series. If students did not realise there was an error, they would be given a series of types of help, in the order shown in Table 2, until they managed to correct it.

## Level II

At the more difficult level, two stories with five pictures and another two stories with six were used that the student had to put in order. The session started with the instruction: «We are going to work on sequences. First, look at them all, and then we will put them in order. First, which one?» Once the correct order of the sequence had been completed, the subject was asked to describe what had happened in the story (with the previously mentioned structure: first..., second..., third..., and finally...).

In the errorless learning approach, before children could pick up the wrong sketch, their hand would be guided to the previous sketch, which was already correctly placed, with the instruction «look closely here...».

In the trial and error approach, the subjects were given as many consecutive instances of help as needed, in the order shown in Table 2, until they placed the correct drawing.

## 2.5. Evaluating the process and learning outcomes

During the sessions described above, each of the correct answers and errors given by the students and any help they received was recorded on paper. It should be noted that while in the errorless approach the children did not actually make errors, these could be detected in their initial intention.

Given that the concepts covered in the verbal labelling tasks were covered again cumulatively in the following sessions, two different types of error were differentiated: new ones (with words introduced for the first time in each session) and repeated ones (with words that had been presented previously).

## 3. Results

### 3.1. Verbal labelling

Overall, the students gave a slightly higher total percentage of correct answers in the trial and error learning approach during the verbal labelling tasks (Table 3), although the differences were not statistically significant.

The students from level I (with less curricular competence) gave the right answer 96.9% of the time when matching the picture cards and word cards over the 16 sessions in the trial and error learning approach, and 93.4% of the time in the errorless learning approach.

In the errorless learning approach, most of the errors made were new ones: 5.6% compared with 1% new errors in the

TABLE 2. Sequence of help in the trial and error learning approach.

| Help                                             | Description                                                                                                                                                                                                                                                                            | Example of verbal instruction at level I          | Example of verbal instruction at level II                                        |
|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------|
| Focusing with description by the student (FDS)   | The teacher directs the child's attention to a relevant clue and asks for a description, while jointly indicating (holding the child's finger) the misplaced element in the sentence.                                                                                                  | «Look closely, what colour is this triangle?»     | «Look closely, what is the cat's belly like here?»                               |
| Focussing with description by the teacher (FDS)  | The teacher directs the child's attention to a relevant clue, while jointly indicating it and simultaneously describing it.                                                                                                                                                            | «Look, this triangle is green.»                   | «Look, here the cat has a big belly.»                                            |
| Comparison with description by the student (CDS) | The teacher jointly indicates and asks the student to compare two elements (at level I the erroneous shape with the one from the model series, and at level II the erroneous cartoon with the one that comes immediately before in the sequence), letting the child complete a phrase. | «Here the triangle is ... and you've put ...»     | «Here the cat has ... And in this one the cat has ...»                           |
| Comparison with description by the teacher (CDT) | The teacher jointly indicates and compares two elements (at level I the erroneous shape with the one from the model series, and at level II the erroneous cartoon with the one that comes immediately before).                                                                         | «Here the triangle is green, and you've put red.» | «Here the cat has a big belly, and here it does not any more.»                   |
| Comparison with explanation by the student (CES) | The teacher jointly indicates and compares two elements, while simultaneously asking for an explanation of the relationship between them.                                                                                                                                              | «Why have you put the red triangle here?»         | «Why does the cat have a big belly here but not here?»                           |
| Comparison with explanation by the teacher (CET) | The teacher jointly indicates and compares two elements, while simultaneously explaining the relationship between them.                                                                                                                                                                | «Here the triangle is green and here it is too.»  | «Here the cat has a big belly, but here it does not because it has had kittens.» |
| Error identification (EI)                        | An error is jointly indicated and the student is encouraged to correct it.                                                                                                                                                                                                             | «Take it off.»                                    | «Take it off.»                                                                   |
| Correction by the teacher (CT)                   | The error correction was moulded with physical guidance (at level I) and the subjects were shown the correct sequence (level II).                                                                                                                                                      | «Take it off.»                                    | «Look.»                                                                          |

Source: Own elaboration.

TABLE 3. Total correct answers and errors in all of the verbal labelling sessions.

| Teaching approach        | Result          | Level I |     | Level II |     |
|--------------------------|-----------------|---------|-----|----------|-----|
|                          |                 | J.      | R.  | A.       | P.  |
| Errorless learning       | Correct answers | 133     | 136 | 140      | 142 |
|                          | New errors      | 9       | 7   | 4        | 2   |
|                          | Repeated errors | 2       | 1   | 0        | 0   |
| Trial and error learning | Correct answers | 138     | 141 | 141      | 144 |
|                          | New errors      | 2       | 1   | 3        | 0   |
|                          | Repeated errors | 4       | 2   | 0        | 0   |

Source: Own elaboration.

trial and error learning approach. In contrast, the percentage of repeated errors in the review activities was slightly higher in the trial and error learning approach (2.1%, compared with 1% in the errorless approach). In other words, the students made fewer errors but the ones they did make were more persistent than in the trial and error learning approach. For example, in the trial and error learning approach, J. made a mistake with the word «banana» and repeated this in several review sessions. The same thing happened to R. with the word «sandwich». In both cases the children were able to self-correct the error.

In the level II group (with greater curriculum competence), the students gave 99% correct answers in the trial and error learning approach and 97.9% in the errorless learning approach. All of the errors were made in the classification phase and none during the review. If we exclude the first verbal labelling session in level II, the overall performance of the subjects was very similar in both learning approaches.

The only type of help given in both levels (on 12 occasions) was *focussing with description by the student* (see Table 2), after which the subject always managed to correct the error.

TABLE 4. Total correct answers and errors in all of the sequential thinking sessions.

| Teaching approach        | Result          | Level I |    | Level II |    |
|--------------------------|-----------------|---------|----|----------|----|
|                          |                 | J.      | R. | A.       | P. |
| Errorless learning       | Correct answers | 54      | 53 | 40       | 37 |
|                          | New errors      | 18      | 19 | 4        | 7  |
|                          | Repeated errors | 0       | 0  | 0        | 0  |
| Trial and error learning | Correct answers | 66      | 66 | 40       | 38 |
|                          | New errors      | 6       | 6  | 4        | 6  |
|                          | Repeated errors | 0       | 0  | 0        | 0  |

Source: Own elaboration.

### 3.2. Sequential thinking

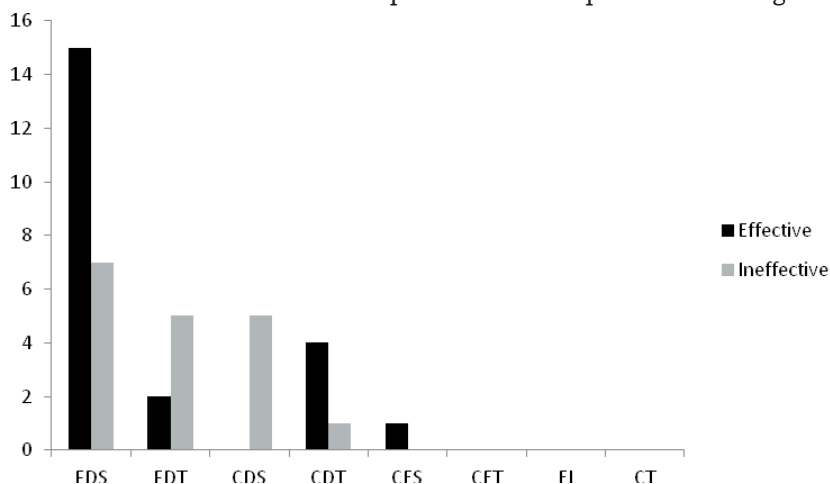
Table 4 shows the overall results obtained in both approaches for training sequential thinking, using the trial and error and errorless approaches, throughout the 8 working sessions.

As in the previous task, students gave more correct answers in the trial and error learning approach: 91.7% (compared with 74.3% in the errorless approach) in the case of the students from level I, and 88.6% (compared with 87.5%) in the case of the students from level II. The main differences between the two teaching approaches regarding success in ordering the sequences were mainly observed in the period corresponding to sessions 2, 3, and 4 at level I, a level where the difference between the average number of correct answers in the errorless learning sessions (6.7) and in trial and error learning (8.3) was significant ( $Z = 2.46$ ;  $p = 0.014$ ). In contrast, at level II the difference is not significant.

No errors were repeated in either approach. Although the level I students made some errors in the review activities, these did not coincide exactly with the ones recorded in the previous sessions with the same content, and so they were classed as new errors.

The set of types of help recorded was more varied than in the verbal labelling tasks. As shown in Graph 1, the most frequent types of help were also *focussing with descriptions by the student* (FDS). At level I, 12 instances of this type of help were recorded (83.3% of which led directly to self-correction of the error). In addition, 2 cases of *focussing with description by the teacher* (FDT) were also recorded, as well as 2 *comparisons with description by the student* (CDS), and 2 *comparisons with description by the teacher* (CDT), although only the last type was effective. At level II, 10 FDS were given (with an effectiveness of 50%), 5 FDT (40%), 3 CDT (66.6%), and 1 *comparison with explanation by the student* (CES) (100%). No explicit *error identification* (EI) or *correction* (CT) by the teacher was required.

GRAPH 1. Total effective and failed help in all of the sequential thinking sessions.



Source: Own elaboration.

## 4. Conclusions

Overall, the above results show the usefulness of highly structured *discrete trial training* processes in curriculum tasks based around verbal labelling and sequential thinking with students with an Autism Spectrum Disorder (ASD). In general, the students made few errors, especially in the verbal labelling tasks<sup>1</sup>, and in the final sessions they achieved success rates close to 90%.

Although the differences between the trial and error and errorless learning approaches were very small among the students at level II, in the sequential thinking task we found a significant difference between the average number of correct answers recorded at level I, in favour of the trial and error learning approach. This result suggests that students with ASD can benefit from very basic self-regulated learning situations, where they are helped to review and correct their own errors in logical sequencing tasks (geometric shapes) and pragmatic tasks (stories). To do this, instead of error avoidance and physical guidance, correction cards were used, as well as a feedback assistance sequence protocol. Low-intensity help, like simply focussing students' attention on certain visual keys in the task, was sufficient on most occasions for the student to complete the self-correction process successfully.

While it is true that the number of *repeated errors* was somewhat higher with the trial and error learning approach, it was still very low, and so we cannot conclude that there is greater vulnerability

deriving from being allowed to make mistakes.

Ultimately, the results at the very least cast doubt on the advisability of systematically using *errorless learning* procedures with curriculum content, as is often done in educational intervention with people with ASD. It appears that further research is required into which conditions make the possibility of making an error a risk and which ones make it an opportunity for better quality learning when the appropriate help is provided.

The conclusions of this research should, however, be treated with caution, owing to the methodological limitations inevitably present in a study in this field. The main limitations relate to the small number of participants, as is often the case in research into ASD. While we took a relatively large number of measurements of the execution of the tasks by the students, we cannot guarantee that we controlled for certain extraneous variables.

In addition, the difficulty of implementing a procedure to balance the two learning approaches in each task, for the reasons explained above, creates a clear threat. The main differences observed between trial and error and errorless learning approaches were concentrated in the first sessions for training sequential thinking in level I. This is a logical reasoning task with some comprehension challenges. As the subjects were previously exposed to the errorless learning method, it could be assumed that familiarisation with the task might have subsequently benefitted

the execution of similar tasks in the trial and error learning approach. However, it is important to note that before starting the research the students were already familiar with doing this type of task, as they had done them previously in the errorless approach with similar content, and so this potential extraneous variable should not have a significant effect on this matter. In future studies, however, it would be advisable to expand the sample of participants, as well as the quantity and quality of learning measures.

Finally, various pieces of research have highlighted the difficulties in generalising the learning acquired with highly-structured procedures, such as the *discrete trial training* approach used in this work. Other *naturalistic* or incidental teaching approaches have proven to be more useful for students with ASD when generalising outside the classroom what they have learnt (see Weiss et al., 2009). Therefore, it seems to be advisable to expand research into the basic self-regulation skills of student with ASD in other learning tasks, with a more functional and contextualised character, inside and outside the classroom.

## Notes

<sup>1</sup> The fact that many of these errors are made in the classification phase (and not in the identifying and naming phases), may be because this technique makes it possible to retain and recover concepts consistently. The probability of error in the identifying and naming phases would be greatly reduced, since, at the end of the classification phase, the students were already able to consolidate the verbal labels they had worked on.

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# Re-engagement in education and training of young people who leave education early: the importance of earlier prior trajectories

## *La reincorporación formativa de jóvenes que abandonan tempranamente la educación: relevancia de su trayectoria previa<sup>1</sup>*

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### Abstract:

The lack of education and training resulting from leaving education early might contribute significantly to high rates of unemployment and inactivity among young people. Education is also seen as a decisive means of tackling these problems. Therefore, acquiring knowledge about the conditions in which re-engagement with education occurs after it is prematurely interrupted deserves special attention. The study presented here explores the opinions of students attending a second-chance educational centre in Ceuta (where the aforementioned benchmarks have

quite high levels) concerning their life courses prior to returning to education there and the impact they attribute to the centre. Data from in-depth, individual interviews were used to do this. These were performed with 39 unemployed young people at risk of social exclusion aged between 18 and 24 (29 had left school early and 10 had not), as part of a broader case study relating to a centre selected for its relative success and its reputation in Ceuta. The information provided by the participants in the form of stories was subjected to narrative analysis, using two processes: summary biographical tables, which represent relevant

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events from their lives alongside their views of them, and thematic analysis of the information contained in them. In broad terms, results indicate that the life courses the participants follow are shaped by decisions they take from options shaped by personal, institutional, and social circumstances. They are, therefore, something like *choice biographies*. In this context, early school leaving and re-engagement in training are recurrent, transitory, and reversible, precisely because of the important role played by the people who experience these situations, even if they do so constrained by their institutional and social setting.

**Keywords:** disadvantaged youth, school dropout, transition to working life, educational re-engagement, second-chance education centres, youth unemployment.

## Resumen:

Las carencias educativas resultantes de abandonar tempranamente la educación estarían contribuyendo significativamente a altas tasas de desempleo e inactividad entre los jóvenes. Sin embargo, la educación también es considerada un medio decisivo para afrontar estos problemas. Por tanto, merece especial atención obtener conocimiento sobre las condiciones en que se produce la reincorporación a la formación tras quedar esta interrumpida prematuramente. El estudio aquí presentado explora, en un centro educativo de segunda oportunidad ubicado en Ceuta (donde los indicadores mencionados alcanzan valores relativos muy elevados), la perspectiva que sus alumnos tienen de su recorrido vital previo a

retornar a la formación en él y la incidencia atribuida al mismo. Para ello se recurre a datos procedentes de entrevistas individuales en profundidad realizadas a 39 jóvenes sin empleo y en riesgo de exclusión social con edades comprendidas entre los 18 y 24 años (29 en situación de abandono temprano de la educación y 10 que no se encontraban en esta situación), como parte de un estudio de caso más amplio referido a dicho centro, seleccionado por su éxito relativo y notoriedad en la mencionada Ciudad Autónoma. La información proporcionada por los participantes en forma de relatos ha sido objeto de análisis narrativo, aplicando dos procedimientos: biogramas que representan sucesos relevantes acaecidos en su vida junto a su visión de estos, y análisis temático de la información recogida en ellos. Globalmente considerados, los resultados indican que los recorridos realizados van siendo contruidos mediante decisiones que los participantes adoptan entre alternativas determinadas por circunstancias personales, institucionales y sociales. Se aproximan así a *biografías electivas*. En este contexto, el abandono educativo temprano y la reincorporación a la formación revisten un carácter recurrente, transitorio y reversible, precisamente en virtud del relevante papel que desempeñan quienes viven estas situaciones, aunque lo desempeñen condicionados por su entorno institucional y social.

**Descriptores:** jóvenes desfavorecidos, abandono escolar, transición a la vida activa, reincorporación formativa, centros educativos de segunda oportunidad, desempleo juvenil.

## 1. Introduction

Youth unemployment and inactivity are growing global phenomena that are causing widespread concern (International Labour Organization, 2017). Their impact is greater on people who leave education early, and so both conditions have been linked to this phenomenon (Flisi, Goglio, Meroni, & Vera-Toscano, 2015). Spain's position with this group of problems is regarded as especially worrying (Jin, Caldera, & García Perea, 2017).

Education and training are linked to these problems, but are also an important part of resolving them, particularly in the case of young people who have to face more difficulties (Pérez & Melendro, 2016). Lack of education and training affect unemployment and inactivity among young people (Woessman, 2016). And as these are especially pronounced in cases of early school leaving (ESL), their negative impact is bigger and broader (Flisi, Goglio, Meroni, & Vera-Toscano, 2015). To avoid or remedy these shortfalls and their impacts, it is common to turn to educational and training measures. These include intervention and prevention measures, as well as measures to tackle the problem after it arises: these are «compensation» measures, aimed at «help[ing] those who left school prematurely to re-engage in education, offering routes to re-enter education and training and gain the qualifications they missed» (European Council, 2011, C 191/6, Annex, Art. 2.3; Ministerio de Educación, Cultura y Deporte, 2015). The attention this type of action deserves is not only justified by the need to address the requirements of people who have left education early,

whose numbers have not changed significantly despite prevention and intervention efforts (Polidano, Tabasso, & Tseng, 2015). It is also justified because the transition between training and working life tends to be more complex, changing, uncertain, and prolonged, making life-long learning increasingly important (Raffe, 2011).

Recognition of the importance of this type of action justifies our study. It examines its addressees' perspective on their prior trajectory as this is likely to play a significant role in them having recourse to such measures. Firstly, a conceptual framework is presented, providing the foundations for putting the re-entry into education of people who left school prematurely into the broader context of the trajectory of their lives. After this, the most notable methodological characteristics of the research are explained. The results are then set out, attempting to preserve the perspective expressed by the participants. Finally, a set of conclusions are proposed in dialogue with studies that have approached similar questions.

## 2. Trajectories and transitions: a panoramic approach

While they are not always consistently defined, three basic notions in the so-called *life course theory* are trajectory, transition, and turning points (Hutchison, 2018). The experiences that shape a person's life course follow trajectories or regular patterns that give them continuity and even direction. While these regular patterns provide stability, they also induce change. The notion of transition is used to

refer to changes in state or situation in an individual's personal trajectory that could be the result of events or processes (sometimes disruptive or disturbing) which have more capacity than others to shape this trajectory or even redirect it: for example, a transition can contribute to a trajectory with a positive direction adopting a negative one, or conversely can contribute to a negative trajectory adopting a positive route. When they are fundamental and decisive, these changes acquire the status of major changes or turning points.

The success of a transition is often linked to it leading to an end state regarded as desirable (such as accessing a productive job) and so moving towards it in a linear and orderly way (te Riele, 2004). Consequently, there has been a tendency to associate any deviation from this standard with failure. In parallel, institutional interest in «easing» transitions through the use of multiple measures has been growing, although these attempts to «manage» such transitions represent a recognition, albeit implicit, of their problematic character (Ecclestone, Biesta, & Hughes, 2010, pp. 3-4).

However, questions have been raised about equating the transition to adult life with a simple linear sequence. Furlong and others (for example, Furlong, Cartmel, Biggart, Sweeting, & West, 2003) have emphasised two closely related characteristics in the most common transitions among young people: non-linearity and complexity. Non-linear transition is defined as a type that, instead of being a direct progress, contains interruptions, frequent changes in direction, and unusu-

al sequences of events. Meanwhile, complexity is associated with longer transitions comprising multiple and sometimes overlapping periods of limited duration in which the individuals, moving through different situations and contexts, experience multidimensional changes (for example, in their knowledge, beliefs, attitudes, emotions, etc.), which go so far as to affect their very identity (Ecclestone, Biesta, & Hughes, 2010).

These changes are usually considered to be uncertain and unpredictable. Accepting this situation generally involves recognising the importance of the decisions and actions of young people involved in them and, ultimately, their active but limited role. From this perspective, the paths they follow emerge from «navigating» the changes taking place in their lives, including those determined by institutional pathways (such as those set by schooling), while deliberating on the opportunities and limitations they encounter (Furlong, 2013).

### 3. Re-engaging with training after early school leaving

Late adolescence, youth, and the so-called *emerging adulthood* are often associated with these phenomena of change we have referred to as transitions. These life stages have overall been regarded as transitional (Heinz, 2009). At the same time, they have been regarded as stages dense in (decisive) transitions (Bele & Kvalsund, 2015, p. 196). Furthermore, some of these transitions can also be given the description of the stages they are part of, and each one, in turn, is associated with multiple changes.

ESL can be regarded as one of the transition phenomena amongst a set of changes relevant to a life stage usually regarded as transitional (Schoon, 2015). It has often been described as a prolonged *process*, which can start in the early stages of school life and «culminates» with leaving the educational institution (Rumberger, 2011, pp. 48, 145, & 151). It has also been likened to «the *final stage* in a dynamic and cumulative process» that is broader (National Research Council & National Academy of Education, 2011, p. 61; author's italics). In both cases, ESL can be regarded as a more or less broad and relatively bounded transition that withdraws young people from school. Furthermore, this transition can be decisive in their subsequent trajectory as it withdraws them from the world of work (through unemployment or inactivity) and even from society (through social exclusion).

However, when accepting the complex and non-linear nature of the ever more common transitions among young people, it may be worth considering that those leaving education early might not separate themselves from it definitively and that, in any case, such an interruption might not be so critical for their future. It is worth adding that if—as has recently been claimed—ESL amounts to a discrete *event* in which lasting factors can be as relevant as emergent situations (Dupéré et al., 2015), other (discrete) events are likely to follow, not necessarily involving negative consequences. Therefore, even though lasting determinants continue to affect the subsequent course (for example, extreme socioeconomic disadvantages),

favourable situations that arise (such as, new educational opportunities) can turn around a negative trend. Even facing up to difficulties could contribute to a positive change in direction. Furthermore, the young people themselves can play an active role in shaping their trajectory in these cases. Re-engaging with education could, then, be as important as ESL or even more so in the future course of those experiencing it, helping introduce a positive change in trend, whether promoted by negative or positive situations and circumstances. Furlong et al. (2003) have expressly raised the possibility of understanding the increasingly frequent and even recurrent return to education as part of a complex and non-linear transition. It has also been suggested that young people play a central role in this change (Ross & Gray, 2005).

Re-engaging with education is worth considering as a potentially important element in the trajectories followed by adolescents and young people, particularly when there has been prior school leaving classed as early. This justifies deepening our knowledge of the conditions in which this occurs, something that includes examining knowledge of the pathway that precedes it in greater depth (García, Casal, Merino, & Sánchez, 2013). The results presented here refer to aspects of the previous life course, which, from the perspective of a group of young people, might have an influence on the re-engagement with education in a distinctive second-chance centre located in a setting that is also distinctive. The data were obtained as part of a wider study, the aims

of which include exploring, in general, the reasons that have led young people from this centre to decide to re-engage with education, including their beliefs about their prior trajectory before coming to the centre and its impact; this is the focus of this work. Some studies have focussed their attention on the trajectory of educational failure followed by adolescents and young people up to the point of ESL, but there have been significantly fewer that take a broader temporal perspective and also focus their attention on re-engagement with education. This study adds to this latter group (see the «Discussion and conclusions» section).

## 4. Method

The data used are part of a case study. The selected case is a publicly-owned centre specifically dedicated to non-formal vocational training to improve the social and workplace integration of unemployed people in situations of risk or social exclusion. This centre was selected because of its relative success in this task<sup>2</sup>, in an especially challenging setting: the Autonomous City of Ceuta, which has rates of youth unemployment, inactivity, and ESL that are among the highest in the European Union (Eurostat, 2016, 2017). Consequently, two distinctive features can be attributed to it, which justify using it as a «unique» case; it is an extreme case, given that it has displayed notable sustained success under the conditions described above; it is also an atypical case, as these achievements exceed the ordinary (Gerring, 2017). Both features also justify treating the case as instrumental for understanding other

special situations or phenomena in their context or even basic aspects of a broader reality or general phenomenon, such as the phenomenon studied here (Thomas & Myers, 2015; Yin, 2018).

### 4.1. Participants

The units of analysis in this case study include early school leavers just before enrolling at the centre and non-early school leavers just before enrolling at the centre. Using the European Council's definition of ESL (2011)<sup>3</sup> and its implementation by Eurostat and Spain's national statistics institute (Instituto Nacional de Estadística), the students classified as being early school leavers are those aged 18 to 24 who have not completed upper-secondary education and were not pursuing any type of education in the four weeks preceding the start of the educational programme, according to the information available in the centre and provided by the students.

The data concern 39 students of both sexes (26 male and 13 female) enrolled at the centre in question in the 2015-16 academic year who voluntarily and expressly accepted the invitation to participate in the research, having been informed about it in detail in accordance with the ethics provisions approved by the funding body. This number represents all of the students in the centre who, complying with the requirements stated above, were still in it when the fieldwork was done. Of them, 29 are ESL students, on whom our attention mainly focusses, and 10 are non-ESL students. The data for the latter group are also included to compare their viewpoints with those of the ATE students.

## 4.2. Data collection and analysis

The study uses qualitative data in order to understand the experiences of the participants in their natural setting through the meanings they give to these experiences. It uses verbal evidence to give them more opportunities to express their point of view with the fewest possible restrictions. The data was collected using individual, in-depth interviews. These were semi-structured, and were implemented based around a small set of core questions, which took as their reference point the proposals by Mills, McGregor, and te Riele (2015, p. 156) and Smyth and Robinson (2015, p. 223). These questions were complemented by other more specific questions for possible use during the interview, aside from other ones that emerged in a given situation, all of which had the aim of obtaining the most comprehensive and accurate information possible according to the particular perspective of each participant (Patton, 2015).

Regarding the focus of this work, the core question was: what is your history before coming to this centre?

The specific questions associated with this were as follows, the first one being introductory:

- How did you come to be at this centre?
- What other centres have you attended?, is there anything you would emphasise, positive or negative, about your experience at them?
- In all of the time that passed before you came here, what would you emphasise

about your life in general, positive or negative?

- From everything that has happened to you, what do you think has had the biggest influence on you coming to this centre?

A first cycle of 39 interviews like this one performed in January 2016 was followed by a second cycle of 21 individual follow-up interviews in May of the same year, which took as their point of reference the preliminary data analysis. All of the interviews were recorded and transcribed, with the verbal and written consent of the participants and with guarantees of confidentiality and anonymity in the processing and use of the information.

The information collected and the analysis of it are narrative in character. Narrative research can be characterised by the phenomenon being studied (namely stories or narratives) or by the methods used to study them (Creswell & Poth, 2017). Regarding the former, it should be noted that this study focusses on the students' perspective of the course they have followed up to the time of enrolling at the centre, expressed through the oral description of experiences they regard as significant and their comments about them. Applying a narrative analysis to this object of study is justified both by the narrative presentation format naturally used by the interviewees, and by the frequent use of this format for examining such processes led by the young people themselves in an attempt to capture their perspective (Furlong, 2013).

As for the second aspect, two analysis procedures were used. Since the information provided mainly referred to a set of significant and even critical events, biograms were used, one of which was prepared for each participant (see Table 1 for an example). This technique, which has been used in studies on related questions (Rojas, Susino, & Calvo, 2013), involves constructing a summary textual and visual representation of relevant events, combined and arranged chronologically, summarising the individual's description of the events in themselves and her perceptions, interpretations and evaluations of them (Suárez-Ortega, 2012). As they have the distinctive feature of being summary, these representations allow for comparisons between more informants and even suggest conjectures applicable to them as a group. In addition, a thematic analysis was also performed (Riessman, 2008) on the information contained in the biograms and other relevant information not included in them. In addition to differentiating between the descriptions provided and the opinions accompanying them, this analysis identifies broad categories referring to life stages and domains, making it possible to allow for information relating to numerous peculiarities associated with each personal situation.

## 5. Results

The information below refers to patterns identified in the data and particular notes relevant to understanding it. It also primarily corresponds to ESL students, although attention is sometimes directed to similarities and differences with non-

ESL students. The data are presented through narrative description accompanied by illustrative verbatim quotations. The development of this section parallels the broader categories identified in the thematic analysis. We thus differentiate by periods that take the institutional educational pathway as a reference (namely, between the period corresponding to compulsory education and the education after this) and then by areas in the participants' lives that they emphasised which are often closely connected (basically, education and training, family context, employment situation, and personal situation).

### 5.1. During compulsory education

The references to this period revolve around education. Few ESL students (five) mention primary education, and they say they did not have any major problems or even that everything went relatively well. In all cases, the problems appear during the compulsory secondary education stage, sometimes in the first two years and sometimes in the third or even fourth year. There are also similarities in reporting these problems: failing and repeating one or two years. From here, there is considerable variety (see Table 2), although the following situations are worth noting. In the case of most of the students who did not complete the stage, unsuccessfully repeating one or two years directly preceded abandoning their ESO studies and, with them, the educational system. In other cases, repeating a level will precede entry to a PCPI<sup>5</sup>, although only half of those who studied it went on to complete it and obtain the ESO diplo-

TABLE 1. Example of a biogram.

| Name | Age | Primary education                                                 | ESO (and PCPI where appropriate) <sup>4</sup>                                                                                                                                                                                                                                                                                     | Context                                | Post-compulsory education and other relevant experience                                                                                         | Context                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|-----|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| XXXX | XX  | Completes primary education without repeating a year: «I passed». | After repeating year 2 of ESO, stays in school until year 3 of ESO, «was going to repeat it» too.<br><br>«The problems begin» («you know what it's like, friends, messing about, being a teenager ... Then you hit the responsibility of studying, and choose one or the other. That's how it is. That's it»). Ends up «failing». | «Leaves» ESO «because I felt like it». | Combines the course at this centre with working towards obtaining the compulsory secondary education diploma in another adult education centre. | «Now» with «more maturity» and «seeing it» as «easier» «wants to get the diploma» even though «it doesn't motivate me.» The following is also suggested: «I see classmates who have the Baccalaureate or a degree and they aren't doing anything. They're worse off than I am. And I'm doing this to get the diploma and end up the same? It's something you have. I know it's something you have to get it, whatever happens». |

Source: Own elaboration.



ma. Furthermore, a significant number of students (eight) achieved this qualification on their own without the need for taking a PCPI.

In general, what in the view of these students explains their paths, is not well defined. *Demotivation* is a term that can be used to describe what is often initially cited to explain problematic and negative experiences relating to this period and/or the educational setting where it happens. The following quotes may be enlightening:

«In my secondary school I didn't do anything I was the typical kid who went to secondary school, sat through the five or six hours of classes and went home... I didn't have any kind of motivation» (male, aged 18).

«I don't know what happened to me. I lost all interest, I don't know... I lost all willingness to study» (female, aged 24).

The same aspect was also mentioned by those studying PCPI to explain their ESL, as they rely on motivation to explain their continuance and success in this programme:

«With so much time sitting down, I didn't feel like studying» (male, aged 22).

«I told myself I was going to do it no matter what. And that's it» (male, aged 19).

As one of the quotations included above illustrates («I don't know what happened to me»), they cannot always explain this demotivated state. When an explanation of

some type is provided, this state is usually associated with a variety of circumstances. These are noticeably different, although they converge with risk factors identified in the literature on ESL (Ripamonti, 2018). In any case, the participants did not present them as unique, decisive reasons for this demotivation, but rather as aspects to which a notable impact was attributed.

Among such circumstances, they mention changes in their immediate surroundings for which they did not have a satisfactory response: changes in different areas, including educational issues (see Table 3). These changes only occasionally affect non-ESL students.

In addition, these students (and only a few non-ESL students) also mentioned as explanations personal changes affecting themselves that prevent or impede them adapting to new situations they face (see Table 4).

There are even people who expressly see the decisive reasons for the abandonment in themselves, accepting responsibility themselves, and even displaying feelings of self-blame and regret:

«It was my fault» (female, aged 19).

«And I feel disappointed in myself. The blame is all mine... Because I know that, if I had wanted to, I would have finished ESO, the Baccalaureate» (male, aged 22).

The participants who emphasised various concurrent aspects as explanations for a problematic and negative experience are,

TABLE 2. Studies completed by ESL students.

|              | Do not achieve a qualification       | Achieve a qualification     | Total     |
|--------------|--------------------------------------|-----------------------------|-----------|
| ESO          | 11<br>(without completing the stage) | 8<br>(completing the stage) | 19        |
| ESO → PCPI   | 5                                    | 5                           | 10        |
| <b>Total</b> | <b>16</b>                            | <b>13</b>                   | <b>29</b> |

Source: Own elaboration.

TABLE 3. Changes in situation mentioned by ESL students.

| Aspects                                             | Frequencies | Examples                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Educational centre, teachers, and teaching          | 8/29        | «In secondary school there were loads of people, and the teachers were just there talking and talking, and us there» (female, aged 24).<br>«The teachers ignored us» (male, aged 18).                                                                                                                 |
| Group of classmates (and other relational settings) | 9/29        | There are older people, there are bad influences and stuff. And that's what happened to me. I fell in with a bad group» (male, aged 23).<br>«I've wasted it by following my classmates... And, also, because of the neighbourhood I live in, El Príncipe, you see some things there» (male, aged 19). |
| Paternity/maternity                                 | 3/29        | «I got pregnant. That made everything harder for me so I gave up. And that's it» (female, aged 23).<br>«My son is 4 now. And I'm with my girlfriend. She also has a child» (male, aged 23).                                                                                                           |
| Family                                              | 10/29       | «Because my mother fell ill and I was with her through the chemotherapy» (female, aged 20).<br>«Because my father was in prison... All he did was ignore me and I just saw nothing but bad things. I couldn't carry on» (male, aged 23).                                                              |

Source: Own elaboration.

TABLE 4. Personal changes mentioned by ESL students.

| Aspects               | Frequencies | Examples                                                                                                                                                                   |
|-----------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maturity              | 11/29       | «As I was at that awkward age, I wasn't interested in studying» (female, aged 19).<br>«Also when I was young I was an idiot... I was lost» (male, aged 23).                |
| Problematic behaviour | 9/29        | «I was a very rebellious child» (female, aged 18).<br>«Lots of suspensions» (male, aged 20).                                                                               |
| Risk behaviour        | 6/29        | «I lost my way, I started smoking drugs. [...] And that change really led me into drugs» (male, aged 18).<br>«I got into everything, when I was 15 or 16» (male, aged 23). |

Source: Own elaboration.

on the whole, ESL students who left ESO without the corresponding diploma. The concurrence of various external and internal conditions would eventually cause an intense and persistent state of demotivation, something that would eventually be reflected in a group of experiences of disaffection, suspensions, and absenteeism, followed by leaving education. In the case of ESL students who did obtain the diploma, these episodes were transitory or one-off. Changes in the educational and social-family context demanded an immediate reaction from the students, but, with time, they were able to restore the initial situation or make the necessary changes, sometimes receiving support from teachers or family members. Something similar happens in the case of non-ESL students.

## 5.2. After compulsory education

None of the ESL students (including those with the ESO diploma) managed to obtain a more advanced qualification before accessing the centre. All of the non-ESL students achieved a more advanced qualification: five obtained vocational qualifications, four achieved the Baccalaureate and one achieved a higher vocational qualification.

But, what happened after the period corresponding to ESO? Although there are still distinctive features and variety, some recurring patterns can be identified. Apart from the youngest ones, who have a shorter or even virtually non-existent subsequent trajectory outside the educational system owing to having repeated a year and/or studied for a PCPI, the ESL students all emphasise the educational

activities they participated in during this period. A significant proportion of them (15 of the 29) had carried out the relevant educational and preliminary guidance activities integrated into the educational programme of which the course they had accessed at that time forms part. Apart from these activities, the following two situations can be noted.

Firstly, the less frequent one involves resuming studies within the educational system, either through ESO for adults, Intermediate Vocational Training, or the Baccalaureate (see Table 5). The last two options were far more common among ESL students who did manage to get the ESO diploma. However, the studies they started would be abandoned once or on several occasions before they enrolled at the centre. When the reasons for abandonment are stated, they are often similar to those given for leaving ESO, with the difference that finding work becomes a priority:

[2nd year of Baccalaureate] it was more demanding. It didn't motivate me because at that time I wasn't mature enough to understand how important it is. The next year, I started doing an intermediate level vocational course, which went very well. I finished the first year. But the next year I got a job and had to stop studying (female, aged 23).

In addition, some students restart formal studies upon starting the course in the centre and so combine them. The former situation is the most common among non-ESL students, with fewer leaving early (just three).

The second, more frequent, situation involves re-engaging with education in occupational or workplace courses outside the educational system (for example, courses from the Public State Employment Service or in companies: 10 ESL students said they had completed these, one reported combining this type of study with the course in the centre, and—in contrast

with the previous situation— only two reported interruptions or abandonment. Three had already studied in this centre before. Only two non-ESL students said they had chosen this second option.

In addition to these patterns relating to participation in education and training, there are others relating to work, the oth-

TABLE 5. ESL students' formal studies after leaving ESO (ordinary).

| Situations                                            | Frequencies |
|-------------------------------------------------------|-------------|
| Interrupts or leaves ESO for adults                   | 3/29        |
| Interrupts or leaves Intermediate Vocational Training | 3/29        |
| Interrupts or leaves Baccalaureate                    | 3/29        |
| Combined with ESO for adults                          | 4/29        |
| Combined with Intermediate Vocational Training        | 3/29        |
| Combined with Baccalaureate                           | 3/29        |

Source: Own elaboration.

er field the participants emphasise when referring to this time. References to work experiences were less frequent among ESL students: two reported having been working part time and four said they did occasional or sporadic work. Furthermore, only one said he had been actively seeking work<sup>6</sup>. Another said he had been involved in volunteering. However, long-term inactivity was also less frequent: only seven students specifically mentioned this situation:

«I took a year off, doing nothing» (male, aged 21).

«I left secondary school with nothing. I spent four years doing nothing» (male, aged 21).

That said, the situation most frequently applicable to all of them at some point is experiencing significant periods of inactivity combined with shorter periods of education and, as the case may be, sporadic work. In this regard, the case of those students who participated in educational activities delivered outside the educational system as they alternate courses («whatever comes up»; «whatever they call on you for») with

periods of inactivity is illustrative. As for non-ESL students, two were in this situation for a prolonged period (around a year) but none of the others mentioned periods of inactivity they regarded as relevant. Four emphasised that they had been doing activities relating to looking for work (such as preparing for competitive exams for public sector jobs in two cases).

Up to here, we have presented what, from the perspective of the participants, has been identified as relevant in their path before enrolling at the centre. Nonetheless, what relating to this prior path has also, from their own point of view, had an impact on them re-engaging with education in this centre? The answer to this question is closely connected to those issues identified as relevant in their path. On the one hand, a notable number of ESL students (21, as well as eight non-ESL students) use the expectation of learning and acquiring education<sup>7</sup> as grounds for deciding to resume their education, although references to continuity with prior education and training are vague or practically non-existent<sup>8</sup>:

«To learn, to get training» (male, aged 23).

«Doing this course really works well for me. This way I learn more» (female, aged 18).

On the other hand, they also mention inactivity as a reason for resuming education, with a similar frequency (20, along with seven non-ESL students):

«So as not to be unemployed another year» (female, aged 21).

«Because I didn't have anything to do» (male, aged 19).

## 6. Discussion and Conclusions

Leaving an activity means withdrawing from it or not carrying on with it. So, anyone who leaves education or training, permanently or temporarily, abandons it. Those who leave education or training withdraw from these activities, permanently or temporarily (in the latter case, with the interruption lasting for more or less time). In the case of temporary withdrawal, the interruption could last for more or less time. People who re-engage in education after ESL illustrate the potentially temporary nature of such a situation. But the results presented go further. As soon as the first situation of ESL occurs, various recurring experiences of resuming education or training follow. These are short duration and are in formal education or, more frequently, outside it. After completing the education or training started in these experiences, or even without completing it, they are likely to return to the situation of ESL, also for a limited period. It is thus noticeable that what is regarded as ESL is reversible (Cardozo, 2012), but also that these reversions can also affect re-engagement and are recurrent. Furthermore, ESL situations that are so transitory and close to the resumption of education could be more similar to repeated interruptions of education (in the sense of repeatedly or continuously deferring it) than to leaving

it in the strict sense. On the other hand, the results indicate that the situations of ESL and the experiences of returning to education are combined with situations and experiences in areas other than education (work, family, personal), to which it is also worth applying these characteristics identified in ESL and the return to education (namely, recurrence, limited duration, and reversibility). Nonetheless, inactivity stands out among these situations and experiences as a common phenomenon while people are in ESL situations. Therefore, two features with which the so-called *choice biographies* of numerous young people have been characterised (Snee & Devine, 2015) can be identified here: reversibility and synchronicity (du Bois-Reymond, 1998).

But these biographies can be described as choice because they are open to the decisions taken by the individuals through which they construct their lives as they move forwards. The results obtained suggest it is plausible to apply this characterisation to early school leavers who re-engage in education or training. In a recent study that considered the path of young people and adults from ESL to university studies, Montes (2016) attributes a «reactive» character (p. 19) to ESL and re-engagement alike. The results presented here indicate that, when they enter a situation of ESL and when they re-engage with education, young people to some extent *opt* to do so, however limited and restrictive the choices available to them may be. They also suggest that these situations are not necessarily the result of having chosen hastily, but instead are

the result of considering the limited opportunities and many and significant difficulties they encounter, in conditions of uncertainty. To summarise, even while being subject to restrictions that specifically undermine its elective nature, this would be a more of a conscious decision than a rash one, even though the initial leaving of education happens earlier than is regarded as normal. This can be observed when the first leaving occurs (when, for example, considering accumulated and/or arising adverse circumstances shapes the selection of a particular path), but it would show itself more clearly later on, in a period where favourable personal changes have occurred while the individual has had to confront other adverse circumstances (like job insecurity and, above all, inactivity). In particular, it is worth recalling that a considerable number of students implicitly assume that they have made progress in their maturity. One student expressly stated: «At high school, because I was younger, I didn't know what I was doing. [...] And then when you are 19 you realise that.» Others assume that there have been favourable changes in other personal conditions that, at one time, would have impeded or hampered continuing their studies (see Table 4). In her study of the return to education of young people with ESL experiences, Pérez (2016) emphasises that there are identity changes in these processes.

It is worth clarifying that this does not mean that the pathways followed by these students are exclusively decided by them. It is important to remember that

a characteristic of these «biographies» is that the social and institutional setting in which certain options are offered ends up obliging the subjects to make an informed choice between them, thus making them responsible (Furlong, 2013). Moreover, the responsibility for responding individually to serious social problems that exceed their power might be being passed onto individuals.

Case studies are considered to be limited in that their conclusions can be expected to be exploratory, although, despite this, they can be of value for providing more general explanations or even theoretical ideas that can be tested in subsequent research (Gorard, 2013). This study could make a contribution in this direction. It merits further work in at least three directions: including more young people and even adults so more perspectives can be compared, expanding the research to other contexts, and following-up over time. External influences on individual decisions, which might not be limiting factors, and the perspective of the agents through which these influences are channelled could also merit attention in further studies.

## Notes

<sup>1</sup> This work results from the «Educational re-engagement at the School of Construction in Ceuta from the perspective of its students: a case study to identify good practices» research project, which was selected by the Instituto de Estudios Ceuties (Institute for Studies on Ceuta), affiliated to the C.S.I.C. (Higher Scientific Research Council), in its 2015 call for research proposals. We would like to thank the organisations that participated.

<sup>2</sup> We initially became aware of this success through the media and, subsequently, through our initial contact with the centre and the student performance figures it provided.

<sup>3</sup> «The term 'early school leaving' is used in connection with those who leave education and training with only lower secondary education or less, and who are no longer in education and training.» (Consejo de la Unión Europea, 2011, p. 1).

<sup>4</sup> ESO: compulsory secondary education (*educación secundaria obligatoria*). PCPI: initial vocational qualification programme (*programa de cualificación profesional inicial*).

<sup>5</sup> Only one non-ESL student used of this pathway.

<sup>6</sup> These activities were included: attending employment services or agencies; registering for job banks, and/or sending CVs and preparing for competitive exams for public sector jobs.

<sup>7</sup> Often as a means of achieving other aims: above all, accessing work.

<sup>8</sup> Only one student referred to the shortcomings in the education she had previously acquired.

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# Perceived social support and school engagement in secondary students

## *Apoyo social percibido e implicación escolar del alumnado de educación secundaria*

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### Abstract:

Secondary education is a stage in which many changes occur, including evolution in students' relationships with teachers, family, and peers. Despite adolescents' need for independence from adults, these processes continue to affect students' adjustment. Therefore, perceived social support can be an important contextual variable in school engagement to prevent high levels of educational failure and school dropout. Consequently, the main aims of this study are: to examine the relationship between perceived social support (from teachers, family, and peers) and the dimensions of school engagement (behavioral engagement,

cognitive engagement, and emotional engagement); to analyse differences in perceived social support and school engagement by sex and age; and to test the predictive capacity of perceived social support on school engagement. A total of 1468 Basque secondary school students (51% female; 49% male), aged between 12 and 17, participated in the study ( $M = 14.03$ ;  $SD = 1.36$ ). The Social and Family Support Scale (AFA), the Teacher and Classmate Support Scale (TCMS), and the School Engagement Measure (SEM) were administered. Student's t-test, correlations and regression analyses were performed. The results indicate positive relationships between

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perceived social support and school engagement. Secondly, significant differences in perceived social support and school engagement by sex and age are also observed. Thirdly, perceived social support has explanatory power for school engagement, particularly emotional engagement. Finally, the results are discussed and directions for future research are proposed.

**Keywords:** perceived social support, perceived support from teachers, perceived support from families, perceived support from peers, school engagement, secondary education.

## Resumen:

La educación secundaria es una etapa en la que acontecen muchos cambios, entre ellos la evolución de las relaciones del alumnado con el profesorado, la familia y las amistades. A pesar de la necesidad adolescente de independencia respecto a las figuras adultas, estas continúan influyendo sobre el ajuste escolar del alumnado. Por ello, el apoyo social puede ser una variable contextual relevante en la implicación escolar del alumnado, para poder afrontar las amenazas de fracaso y abandono escolar. Así, los objetivos de este estudio son: examinar la relación entre el apoyo social percibido —apoyo del profesorado, apoyo familiar y apoyo de amistades— y las dimensiones de la implicación escolar conductual, cognitiva y emocional; analizar las diferencias en el apoyo social percibido y en

la implicación escolar en función del sexo y la edad del alumnado; y comprobar la capacidad predictiva del apoyo social percibido sobre la implicación escolar. En la investigación participan 1468 estudiantes de educación secundaria del País Vasco con edades entre 12 y 17 años ( $M = 14.03$ ;  $DT = 1.36$ ), 51 % chicas y 49 % chicos. Se emplean la escala de Apoyo Familiar y de Amistades (AFA), la subescala de Apoyo de Profesorado del instrumento (TCMS, del inglés *Teacher and Classmate Support Scale*) y el Cuestionario de Implicación Escolar (SEM, del inglés *School Engagement Measure*). Se procede con análisis estadísticos de comparación de medias *t* de *Student*, correlaciones y regresiones. Los resultados indican relaciones positivas entre el apoyo social percibido y la implicación escolar del alumnado. Además, existen diferencias significativas tanto en el apoyo social percibido como en la implicación escolar atendiendo al sexo y la edad. Por último, el apoyo social percibido tiene capacidad explicativa sobre la implicación escolar, destacando el efecto del apoyo del profesorado sobre la implicación escolar del alumnado y, en especial, sobre la implicación emocional. Finalmente, se discuten los resultados y se proponen futuras líneas de investigación.

**Descriptores:** apoyo social percibido, apoyo del profesorado, apoyo familiar, apoyo de amistades, implicación escolar, educación secundaria.

## 1. Introduction

Various academic disciplines, including sociology, psychology, and pedagogy, have shown an interest in social support and school engagement (González, 2010; Gracia, 2011).

The *social support* construct took shape in the 1970s through the work of authors like Caplan (1974), Cassel (1976), and Cobb (1976). These authors refer to social support as an individual's perception of feeling valued, loved, and like part of a social network with shared responsibilities. Social support, therefore, has various functions and sources, and there is a distinction between perceived support and the support actually received (Gracia, 2011): social support received is objective, while the perceived support is subjective and fundamental in the adjustment of the person (Landeró & González, 2006). In fact, the perceived availability of the social network and satisfaction with the support received are important aspects of the conceptualisation of social support (Sarason, Levine, Barsham, & Sarason, 1983), and the network's quality being more important than its size (Gottlieb, 1985).

Lin (1986) offers one of the most comprehensive definitions of social support: real or perceived interactions with the community, social network, and close people, providing feelings of belonging, links, and commitment, and they have expressive or emotional and instrumental—material and informational—functions. Although research has focussed on the emotional function of social support and its value, there is evidence for the importance of the informational function and of teachers as

important sources of informational support (Hombrados-Mendieta, Gómez-Jacinto, Domínguez-Fuentes, García-Leiva, & Castro-Travé, 2012).

In Bronfenbrenner's ecological perspective (1979, 2005), the family and school are important contexts for the development and adjustment of students. Consequently, during adolescence, social sources of support from family, friends, and teachers stand out (Hombrados-Mendieta et al., 2012), contributing to the school adjustment of adolescent students (Lam et al., 2012).

School engagement, an indicator for educational adjustment, also does not have a single definition and form. One definition of school engagement is students' experience of centripetal connection with the school (Veiga, 2016).

The academic community currently has a consensus on the multidimensional structure of school engagement, ranging from two to four components, with a tripartite structure being most widely-accepted (Ros & Zuazagoitia, 2015). However, school engagement was conceptualised in the 1980s using a one-dimensional structure of participation by students in school activities (Mosher & MacGowan, 1985; Natriello, 1984).

Authors such as Finn (1989, 1993) then formulated the participation-identification model, adding the emotional element of school engagement, understood as a sense of identification with or belonging to the school, the feelings of valuing and

accepting the school, the teachers, and classmates. These two dimensions —behavioural and emotional— influence each other mutually and have an effect on school achievement (Willms, 2003).

Later on, the three-dimensional proposal of Fredricks, Blumenfeld, and Paris (2004) included the cognitive dimension, which requires motivation, effort, and the use of learning strategies. In Spain, subsequent research has examined school engagement considering its tripartite structure —behavioural, emotional, and cognitive— (Ros, Goikoetxea, Gairín, & Lekue, 2012), dimensions that relate to each other (Li & Lerner, 2013) and will be considered in the present work.

In addition, approaches that add a fourth, academic dimension (Appleton, Christenson, Kim, & Reschly, 2006; Reschly & Christenson, 2012) or a dimension relating to capacity for action (Veiga, 2016) are worth noting. The academic dimension refers to the time invested in the task and the dimension related to capacity for action (*agency*) to the constructive contribution by students, that involves initiative, dialogue, questions, and suggestions. However, this overview of the theory shows that the different dimensions duplicate concepts, overlap with each other, and are not entirely clear.

In any case, the academic literature reflects the growing interest in a problem that affects educational systems and brings with it the risk of school dropout (Wang & Fredricks, 2014): lack of school engagement among students (González, 2010). School

engagement is related to contextual factors such as the family, teachers, and classmates (Gutiérrez, Tomás, Romero, & Barrica, 2017; Veiga, Burden, Appleton, Taveira, & Galvão, 2014).

There are works with adolescents that show the positive relationship between school engagement and sources of perceived social support (Azpiazu, Esnaola, & Ros, 2014; Lam et al., 2012, 2016), as well as the influence of perceived social support on the dimensions of school engagement (Fernández-Zabala, Goñi, Camino, & Zulaika, 2016; Ramos-Díaz, Rodríguez-Fernández, Fernández-Zabala, Revuelta, & Zuazagoitia, 2016; Rodríguez-Fernández et al., 2016). The works cited concur that support from teachers is especially important for students' school engagement and is followed by family support, with support from classmates in last place.

Similarly, existing studies show significant differences in perceived social support and school engagement by sex and age. The highest scores in classmate support (Hombrados-Mendieta et al., 2012), behavioural engagement, and emotional engagement correspond to girls, while for cognitive engagement, teacher support and family support do not show significant differences between boys and girls (Fernández-Zabala et al., 2016).

As for age, students aged 14 or under report higher levels of school engagement —behavioural, emotional, and cognitive— (Ramos-Díaz, Rodríguez-Fernández, Ros, & Antonio-Agirre, 2017), teacher support, and

family support than students aged over 14. In classmate support, however, the differences between the two age groups are not significant (Fernández-Zabala et al., 2016).

Studies carried out in different countries show that both perceived social support—family, teachers, and classmates—and school engagement are higher for girls than for boys, and that the scores fall in secondary education (Lam et al., 2012, 2016; Ros, 2014; Ros et al., 2012; Tuominen-Soini & Salmela-Aro, 2014; Wang, Chow, Hofkens, & Salmela-Aro, 2015; Wang & Eccles, 2012).

Ultimately, although academic literature suggests the existence of positive relationships between perceived social support and school engagement, as well as the influence of the first variable on the second, along with higher scores for girls and the reduction of both variables in secondary education, these results are not always statistically significant for all dimensions and they do not always match across the different studies.

## 2. Method

### 2.1. Objectives

Having seen this theoretical review of the variables being analysed, the objectives of this study are:

1) To analyse the relationship between perceived social support—support from teachers, family support, and support from friends—and the dimensions of school engagement (behavioural, emotional, and cognitive).

2) To verify the differences in the perceived social support and school engagement variables by sex and age.  
3) To examine the predictive capacity of perceived social support on school engagement.

### 2.2. Hypothesis

The hypotheses formulated in accordance with the stated objectives are as follows:

- a) Perceived social support is positively related to the dimensions of school engagement, and the strength of the association between support from teachers and students' school engagement is especially notable.
- b) Perceived social support and school engagement vary depending on sex and age: the highest scores are for girls and younger adolescent students.
- c) Perceived social support has explanatory power for school engagement of students, with the predictive power of teacher support standing out.

### 2.3. Design

This is a comparative cross-sectional research study covering natural groups from the same culture, in other words, more than one dependent variable is compared at a time in the groups of participants, in which there are different levels in the variables such as sex and age (Ato, López, & Benavente, 2013). Use of a correlational study makes it possible to analyse the dependent variable (school engagement) and the independent variables (perceived social support from teachers, perceived social support from the family, and perceived

social support from friends). It should be noted that this is not a non-experimental study, but rather an *ex post facto* one in which the variables are not manipulated, but are analysed after they occur. Finally, when speaking about the predictive or explanatory power of the predictor variable on the criterion variable, it is worth noting that it is statistical causality.

## 2.4. Procedure

The sample was selected randomly. In other words, the schools were picked at random from the official list of the Department of Education of the Basque Government, as were the age groups for each school. Next, the schools were contacted so the research could be presented to the teaching staff and their voluntary participation requested, with the agreement that they would be notified of the results when the research was finished. After the teachers had agreed to participate, consent from the students' families was requested with an information letter. Once written permission had been obtained from the families, the researchers travelled to the schools to administer the set of questionnaires on paper. The students were asked to give voluntary consent and their anonymity was guaranteed to ensure they would give honest answers. In addition, the single blind procedure was used, in which students do not know the aim of the study so they are not affected by expectations, reactions, and social desirability. In addition, it was simultaneously administered to all of each group in a class to ensure equal conditions and uniformity. The researchers were in the classroom to clarify doubts and check all of the texts

were completed. The time did not exceed half an hour so that the participating students would not get tired.

## 2.5. Participants

This research featured 1468 students from 9 secondary schools selected at random in the Basque Autonomous Region (BAR), 5 of which are public and 4 state-funded independent. Of the participating students, 49% are male and 51% female, with ages between 12 and 17 ( $M = 14.03$ ;  $SD = 1.36$ ). Two age groups were established: 60% of the students are from early adolescence (ages 12-14) and 40% intermediate adolescence (ages 15-17) (Feldman, 2007). The total number of participants in Table 1 is 1457, as 11 cases are missing values in the sex and age variables.

## 2.6. Measurement instruments

This study considers perceived social support in a broad sense as it covers its three dimensions: teacher support, family support, and classmate support. Likewise, school engagement is analysed in its three dimensions: behavioural, emotional, and cognitive.

Support from teachers is evaluated through the Teacher and Classmate Support Scale (TCMS) (Torsheim, Wold, & Samdal, 2000), which presents 4 items using a Likert scale of 5 points (from 1 = *disagree fully* up to 5 = *agree fully*). The items measure fair treatment, help, interest, and friendliness from teachers to students. The internal consistency of the scale in the original validation is .81 and .77 for ages 13 and 15 respectively. The reliability obtained in this study is  $\alpha = .747$ .

TABLE 1. Distribution of participants by sex and age.

| Sex    | 12-14        | 15-17        | Total        |
|--------|--------------|--------------|--------------|
| Male   | 429 (29.4 %) | 278 (19.1 %) | 707 (48.5 %) |
| Female | 451 (31 %)   | 299 (20.5 %) | 750 (51.5 %) |
| Total  | 880 (60.4 %) | 577 (39.6 %) | 1457 (100 %) |

Family and classmate support are measured using the reduced family and classmate support scale (AFA-R) (González & Landero, 2014), which comprises 14 items and 5 answer choices (from 1 = *never* to 5 = *always*) and two dimensions: *family support* (7 items) and *classmate support* (7 items). The items evaluate the perception of support from family and classmates regarding availability to talk, receive help and affection when needed. The internal consistency in the validation of the instrument for the *family support* dimension  $\alpha = .923$  and for *classmate support*  $\alpha = .895$ . In the current work, the reliability scores are as follows: *family support*  $\alpha = .854$  and *classmate support*  $\alpha = .831$ .

Finally, school engagement is measured using the School Engagement Measure (SEM) instrument (Fredricks, Blumenfeld, Friedel, & Paris, 2005), which has 19 items and 5 alternative answers (from 1 = *never* to 5 = *always*) to analyse its three dimensions: *behavioural engagement* (5 items), *emotional engagement* (6 items), and *cognitive engagement* (8 items). In the validation of the Spanish version with a sample of adolescents from the Basque Country, the instrument has the following reliability scores:  $\alpha = .74$  for *behavioural engagement*,  $\alpha = .81$  for *emotional engagement*, and  $\alpha = .77$  for *cognitive engagement* (Ramos-Díaz, Rodríguez-Fernández,

& Revuelta, 2016). The Cronbach's Alphas for this study are similar to those found in the cited sample, as both samples share similar characteristics:  $\alpha = .736$  in *behavioural engagement*,  $\alpha = .819$  in *emotional engagement*, and  $\alpha = .777$  in *cognitive engagement*.

## 2.7. Data analysis

First, the assumptions of normality and homogeneity of variance of the general linear model were tested. The Kolmogorov-Smirnov and Shapiro-Wilk tests indicate that the data in the variables do not follow the normal distribution, and the Levene test shows the existence of heterogeneous groups. However, visual inspection of the graphs shows the fit of the points to the normal plot and its similarity to the Gaussian distribution. Likewise, the skew and kurtosis values show that most of the groups do not exceed the value of  $|1|$  and even for the variables that do exceed this value, there is not a large skew  $|2|$  or high kurtosis  $|3|$ . Consequently, the decision to use parametric tests was taken. These are robust tests when the assumptions are violated, provided that the variables are not highly skewed (Chok, 2010; Montilla & Kromrey, 2010; West, Finch, & Curran, 1995). Furthermore, the tolerance levels and variance inflation factors guarantee the absence of colinearity between the regressors. It is also possible

to assume the normality and homoscedasticity of the residuals from a visual inspection of the histograms, the normal P-P plots, and the scatter plots, as well as the Kolmogorov-Smirnov test. On these grounds, regression analysis was chosen.

The statistical analyses were then performed using the SPSS 24 program. Specifically, the Pearson correlations make it possible to test the linear association between the dimensions of the perceived social support and school engagement variables, as well as its direction and strength; Student's *t* test compares the means of the variables being studied by sex and age; and the multiple linear regression, stepwise method, to measure the dependence between the variables, in other words, the contextual variable's explanatory capacity for the educational variable. Cases with missing values in the variables analysed were excluded in all of the analyses mentioned.

### 3. Results

#### 3.1. Relationship between perceived social support and school engagement

Table 2 shows the Pearson correlation coefficients between perceived social support (teacher support, family support, and classmate support) and school engagement (behavioural, emotional, and cognitive), as well as Cronbach's Alpha for each factor.

The relationship between the perceived social support dimensions and the school engagement scales is statistically significant and positive, apart from the association between classmate support and cognitive engagement, which is not statistically significant. Regarding the intensity of the relationship, teacher support and emotional engagement are the social support and school engagement dimensions with the strongest relationship. In fact, the relationship between teacher support and emotional engagement is moderately strong. These dimensions are followed by

TABLE 2. Bivariate correlations between the variables and alphas for each factor.

| Variable                  | 1       | 2       | 3       | 4       | 5       | 6    |
|---------------------------|---------|---------|---------|---------|---------|------|
| 1. Teacher support        | –       |         |         |         |         |      |
| 2. Family support         | .280*** | –       |         |         |         |      |
| 3. Classmate support      | .065*   | .314*** | –       |         |         |      |
| 4. Behavioural engagement | .376*** | .296*** | .052*   | –       |         |      |
| 5. Emotional engagement   | .474*** | .323*** | .194*** | .475*** | –       |      |
| 6. Cognitive engagement   | .318*** | .242*** | .024    | .396*** | .439*** | –    |
| Cronbach's Alpha          | .747    | .854    | .831    | .736    | .819    | .777 |

Note: Correlation coefficients (Bisquerra, 2004): <.20 very low, .20-.39 low, .40-.59 moderate, .60-.79 high, >.80 very high. \**p* < .05. \*\*\**p* < .001.

Source: Own elaboration.

family support and behavioural engagement. The classmate support and cognitive engagement scales have the weakest connection. Consequently, the data suggest that the higher the perceived social support, the greater the school engagement, and vice versa: the lower the perceived social support, the lower the school engagement.

### 3.2. Perceived social support and school engagement: differences by sex and age

In order to test the existence of differences by sex and age, Tables 3 and 4 show the results of Student's *t* test for independent samples corresponding to perceived social support and school engagement respectively.

TABLE 3. Perceived social support and school engagement by sex and age.

| Dimensions        | Sex    | <i>n</i> | <i>M</i> | <i>ST</i> | <i>t</i> | <i>p</i> | <i>d</i> <sub>Cohen</sub> |
|-------------------|--------|----------|----------|-----------|----------|----------|---------------------------|
| Teacher support   | Male   | 710      | 13.44    | 3.26      | -1.07    | .286     | .056                      |
|                   | Female | 753      | 13.62    | 3.17      |          |          |                           |
| Family support    | Male   | 710      | 29.34    | 4.56      | -.71     | .477     | .037                      |
|                   | Female | 753      | 29.52    | 5.14      |          |          |                           |
| Classmate support | Male   | 710      | 27.10    | 4.52      | -10.13   | .000***  | .534                      |
|                   | Female | 753      | 29.42    | 4.22      |          |          |                           |
| Dimensions        | Age    | <i>n</i> | <i>M</i> | <i>ST</i> | <i>t</i> | <i>p</i> | <i>d</i> <sub>Cohen</sub> |
| Teacher support   | 12-14  | 882      | 13.86    | 3.29      | 4.93     | .000***  | .273                      |
|                   | 15-17  | 578      | 13.03    | 3.03      |          |          |                           |
| Family support    | 12-14  | 882      | 29.85    | 4.71      | 3.93     | .000***  | .206                      |
|                   | 15-17  | 578      | 28.83    | 4.98      |          |          |                           |
| Classmate support | 12-14  | 882      | 28.34    | 4.50      | .57      | .57      | .030                      |
|                   | 15-17  | 578      | 28.21    | 4.55      |          |          |                           |

Note: Cohen's *d* effect size (1988): .200 small, .500 medium, and .800 large. \*\*\**p* < .001.

Source: Own elaboration.

The results suggest there are significant differences in classmate support by sex, favouring the girls. In other words, girls receive more social support from friends than their male counterparts do. Furthermore, the effect size is small (*d* = .534). With teacher support and family support, the differences are not significant by sex, but are statistically significant

by age. Specifically, students perceive the greatest support from their teachers and families in early adolescence. This perceived support falls in middle adolescence. Nonetheless, the effect size is small for both types of support by age: teachers (*d* = .273) and family (*d* = .206). Classmate support does not differ significantly between the two age groups.

TABLE 4. School engagement by sex and age.

| Dimensions             | Sex    | <i>n</i> | <i>M</i> | <i>ST</i> | <i>t</i> | <i>p</i> | <i>d</i> <sub>Cohen</sub> |
|------------------------|--------|----------|----------|-----------|----------|----------|---------------------------|
| Behavioural engagement | Male   | 710      | 3.73     | .60       | −7.62    | .000***  | .403                      |
|                        | Female | 753      | 3.96     | .55       |          |          |                           |
| Emotional engagement   | Male   | 710      | 3.50     | .70       | −5.35    | .000***  | .280                      |
|                        | Female | 753      | 3.69     | .66       |          |          |                           |
| Cognitive engagement   | Male   | 710      | 2.84     | .73       | −.47     | .640     | .025                      |
|                        | Female | 753      | 2.85     | .69       |          |          |                           |
| Dimensions             | Age    | <i>n</i> | <i>M</i> | <i>ST</i> | <i>t</i> | <i>p</i> | <i>d</i> <sub>Cohen</sub> |
| Behavioural engagement | 12-14  | 882      | 3.92     | .59       | 5.77     | .000***  | .302                      |
|                        | 15-17  | 578      | 3.74     | .57       |          |          |                           |
| Emotional engagement   | 12-14  | 882      | 3.71     | .69       | 7.79     | .000***  | .408                      |
|                        | 15-17  | 578      | 3.43     | .65       |          |          |                           |
| Cognitive engagement   | 12-14  | 882      | 2.93     | .73       | 6.08     | .000***  | .334                      |
|                        | 15-17  | 578      | 2.71     | .66       |          |          |                           |

Note: *d* effect size (Cohen, 1988): .200 small, .500 medium, and .800 large. \*\*\**p* < .001.

Source: Own elaboration.

In relation to school engagement, there are significant differences between boys and girls in the behavioural and emotional dimensions, while the differences are not significant for cognitive engagement. Again, girls that report greater emotional and behavioural engagement, and younger adolescents are more engaged behaviourally, emotionally, and cognitively. And again, as adolescence progresses, the scores in the three dimensions for school engagement decrease. Finally, the effect size is small (*d* = .280 for emotional engagement by sex; *d* = .302 and *d* = .334 for behavioural engagement and cognitive engagement by age, respectively) and on occasion the average effect is approached (*d* = .403 for behavioural engagement by sex and *d* = .408 for emotional engagement by age).

### 3.3. Prediction of perceived social support on school engagement

Finally, Table 5 contains the results found in the multiple linear regression analysis with the aim of discovering the influence of perceived social support on the school engagement dimensions.

In the three explanatory models for school engagement —behavioural, emotional, and cognitive— teacher support, firstly, and family support, secondly, appear as significant predictor variables. Classmate support, however, while it is in third place for both emotional engagement and cognitive engagement, is excluded from the model for behavioural engagement.

TABLE 5. Prediction of perceived social support on school engagement.

| Predictor variable                             | <i>R</i> <sup>2</sup> | $\Delta R^2$ | Standard error | Constant | $\beta$ | <i>t</i> |
|------------------------------------------------|-----------------------|--------------|----------------|----------|---------|----------|
| Behavioural engagement ( <i>F</i> = 161.41***) |                       |              |                |          |         |          |
| Teacher support                                | .141                  | .140         | .54            | 2.92     | .318    | 12.89*** |
| Family support                                 | .181                  | .179         | .53            | 2.33     | .207    | 8.41***  |
| Emotional engagement ( <i>F</i> = 185.32***)   |                       |              |                |          |         |          |
| Teacher support                                | .224                  | .224         | .60            | 2.23     | .419    | 18.05*** |
| Family support                                 | .264                  | .263         | .59            | 1.54     | .170    | 6.97***  |
| Classmate support                              | .275                  | .274         | .59            | 1.19     | .114    | 4.86***  |
| Cognitive engagement ( <i>F</i> = 72.23***)    |                       |              |                |          |         |          |
| Teacher support                                | .101                  | .100         | .67            | 1.89     | .270    | 10.62*** |
| Family support                                 | .127                  | .125         | .66            | 1.32     | .183    | 6.84***  |
| Classmate support                              | .129                  | .127         | .66            | 1.48     | -.051   | -1.98*   |

Note:  $\Delta R^2$  effect size (Cohen, 1988): .020 small, .130 medium, and .260 large. \**p* < .05.

\*\*\**p* < .001.

Source: Own elaboration.

Likewise, the standardised beta coefficients' values confirm that the variable with the greatest weight in the three models is teacher support, which has a considerable difference from family support and classmate support. So, faced with the increase in teacher support, the increase in emotional engagement stands out at .419.

In turn, the adjusted coefficients of determination show that the emotional engagement model has a high explanatory power, and that the behavioural engagement and cognitive engagement models have moderate predictive power. Accordingly, the sources of social support explain 27.4% of the variance in emotional en-

gagement, 17.9% for behavioural engagement in, and 12.7% for cognitive engagement.

## 4. Conclusions and discussion of the results

The first hypothesis, proposing positive and significant relationships between perceived social support and school engagement, is almost wholly proven, in line with previous research (Gutiérrez et al., 2017), apart from the relationship between classmate support and cognitive engagement, which is not significant. This also matches previous studies (Fernández-Zabala et al.,

2016; Ramos-Díaz, Rodríguez-Fernández, Fernández-Zabala, et al., 2016; Rodríguez-Fernández et al., 2016; Rodríguez-Fernández, Ramos-Díaz, Ros, & Zuazagoitia, 2018).

Furthermore, the association between teacher support and school engagement stands out. Teacher support is followed in intensity by family support with classmate support in last place. In fact, the strongest relationship is between teacher support and emotional engagement. These results correspond with earlier works (Azpiazu et al., 2014; Fernández-Zabala et al., 2016; Lam et al., 2012; Ramos-Díaz, Rodríguez-Fernández, Fernández-Zabala et al., 2016; Rodríguez-Fernández et al., 2016).

Likewise, the third hypothesis is confirmed. This relates to the explanatory power of perceived social support on students' school engagement. The predictive power of teacher support for school engagement stands out, especially for emotional engagement. It is followed by family support, with classmate support in last place. While classmate support has a positive influence on emotional engagement—in other words on the students' sense of identification or belonging—its influence on behavioural engagement—student participation—is not significant, and it negatively affects cognitive engagement, in other words, investment in learning. These findings concur with previous analyses which found a larger effect on school engagement from teachers than from the family and found that classmate support

does not have an effect (Lam et al., 2012; Ramos-Díaz, Rodríguez-Fernández, Fernández-Zabala, et al., 2016) or that it has a negative effect on cognitive engagement (Fernández-Zabala et al., 2016; Rodríguez-Fernández et al., 2018). It should also be noted that there is evidence for a lack of predictive power for peers along with a greater influence for the family than teachers on school engagement (Gutiérrez et al., 2017).

In any case, even though adolescent students need support and care in their relationships with family, teachers, and classmates (Wonglorsaichon, Wongwanich, & Wiratchai, 2014), support from the first two groups is more important than support from classmates in for students to achieve school engagement in secondary education (Lam et al., 2016): the family provides emotional and instrumental support and teachers provide informational support (Hombrados-Mendieta et al., 2012). During adolescence—a stage marked by numerous changes and the need for independence from parents (Feldman, 2007)—teachers are a source of adult support providing guidance, advice, and information. Therefore, teachers can be a highly effective source of support to meet the need for frequent information during adolescence.

For their part, prosocial friendships can have a positive influence on adolescent students' school engagement, while antisocial friendships or problematic ones have a negative influence (Li, Lynch, Calvin, Liu, & Lerner, 2011; Wang &

Eccles, 2012). In addition, the greater time invested in friendships during adolescence (Hernando, Oliva, & Pertegal, 2013) can have a detrimental impact on school engagement, as it can take time away from school work.

Similarly, the second hypothesis, regarding differences in perceived social support and school engagement by sex and age, is supported. The differences in classmate support favour girls, as has been found in previous works (Hombrados-Mendieta et al., 2012). This is also the case for the behavioural and emotional dimensions of school engagement. They also favour younger adolescent students in teacher and family support, and in the three dimensions of school engagement (Fernández-Zabala et al., 2016; Ramos-Díaz et al., 2017). In general, the results of this work concur with the existing academic literature, which provides evidence for a greater perception of social support and school engagement by girls and a reduction in both variables during secondary education (Lam et al., 2012, 2016; Ros, 2014; Ros et al., 2012; Tuominen-Soini & Salmela-Aro, 2014; Wang et al., 2015; Wang & Eccles, 2012).

The differences observed could relate to differing socialisation by sex and different expectations by families and teachers. Girls tend to be educated more for emotional, expressive, communicative, and bonding development, and boys receive more encouragement to be independent and autonomous. Consequently, girls might regard friendship as more important and have a larger number of closer

and more intimate friends (Martínez & Fuentes, 1999). As a result, they might perceive greater social support from friends.

In this area, teachers should make an effort to combat the influence of stereotypes, including lower academic engagement by boys (Heyder & Kessels, 2015), as expectations can be activated but not necessarily applied (Glock & Krolak-Schwerdt, 2014). To achieve equitable treatment of students at school, teachers must be aware of and monitor possible unwanted influences from their thoughts, ensuring they judge students according to their individual characteristics and not because they belong to a particular group.

On the other hand, the fall in scores in mid-adolescence could be because this is the most critical stage in adolescence, when the desire for independence from adult figures grows (Feldman, 2007). Despite this, perceived family support continues to be vital for adolescent adjustment (Musitu & Cava, 2003). Secondary education might involve a bigger school and more teachers, circumstances that can worsen the quality of the relationship between teachers and students. Furthermore, the increase in control and discipline in a stage characterised by the need for autonomy, more academic pressure, and competitiveness could be factors that lead to the loss of school engagement and valuing of learning (Wang & Eccles, 2012; Wang et al., 2015).

In any case, it is important to identify the first signs of the process of lack

of school engagement in order to intervene and prevent it by improving support relationships between teachers and students (Ang, Huan, Chan, Cheong, & Leaw, 2015). Possible antidotes for a lack of school engagement among students, include proposing that teachers awaken students' interest and offer a stimulating education with opportunities for analysis and critical thinking about the academic context, in other words, an education that involves students as active agents of change (Yonezawa, Jones, & Joselowsky, 2009).

On this line, teachers should support the students' need for autonomy, exercise less restrictive control, help reduce pressure from evaluations and competitive work, and increase the students' motivation and school engagement (Raufelder et al., 2014). Teachers can also encourage students to participate in extracurricular activities that are a source of motivation and enjoyment.

In short, teachers should be aware of their great influence on the students' school engagement and, in particular, on their emotional engagement. This is why it is important to work on positive emotions towards students' work and school (Wang, et al., 2015). Ultimately, teachers must be engaged in improving interpersonal relationships, participation, valuation, and learning in the school setting and also engage the students and their families in these factors.

That said, this study has limitations deriving from it being transversal, and

so there is a need to perform future longitudinal studies that make it possible to study the two variables —perceived social support and school engagement— throughout adolescence. Furthermore, it would be a good idea to study other stages such as childhood, late adolescence, and young adulthood, which coincide with primary and university education, to test the relationship between the variables and differences by sex and age.

With a view to future research, it would also be useful if, as well as students, other sources of information were considered, such as teachers and families. This way, it would be possible to use not only self-reports but also other information collections methods such as interviews. Similarly, it would be a good idea to continue this line of research including other variables such as the educational styles of families and teachers, as well as studying the sociometric status of the peer group. Again, other educational variables could be included, such as academic performance, measured through self-reports and objective tests like the students' grades. Finally, more complex analyses could be performed to provide as accurate an explanation as possible for the complexity of human behaviour through models of structural equations that simultaneously examine the relationships between the contextual-educational factors and which enable the integration of psychological variables such as self-concept and emotional intelligence.

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# Validation of the construct of self-determination through the ARC-INICO scale for teenagers<sup>1</sup>

## Validación del constructo de autodeterminación a través de la escala ARC-INICO para adolescentes

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### Abstract:

Self-determination is a good predictor of quality of life, which is defined as a strategy that aims to increase and improve the educational practices focused on individuals' needs at a global and life-long-term level. Hence, the evaluation of this construct has undergone notable advances in our country due to the acceptance of international theoretical models and the design of specific instruments for our context. The ARC-INICO scale (Verdugo et al., 2014) assesses four characteristics of self-determined behavior in teenagers: autonomy, self-regulation, empowerment and self-concept. This structure is based on the Wehmeyer's Functional Model (1999, 2003). It has only been validated with Spanish students with intellectual and developmental disabilities. The purpose of

this study is to assess the psychometrical properties of this scale in Galician population, checking its equivalence both for use with young people with neurological development disorders and without them. The sample was made up of 2220 high school students. A Confirmatory Factor Analysis was conducted to test the scale structure using the original proposal based on a higher-order factor structure on a correlated four factor model, and a single-factor model which assumes the unidimensionality of self-determination. Regarding the reliability, high overall internal consistency and for its sections has been found. Although the unifactorial model offers an acceptable adjustment (Model 1: GFI = .958, AGFI = .941, RMSEA = .057), it is superior in the higher order model (Model 2: GFI = .970, AGFI = .954; RMSEA = .049).

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In addition, the factorial invariance measure shows the utility of model 2 to compare scores according to the presence or absence of neurological development disorders. In conclusion, the ARC-INICO scale provides an important basis for decisions making regarding the design of care programs, through the development of resources, guidelines and strategies, and provides information for the differential provision of said resources and supports.

**Keywords:** self-determination, students, questionnaire, test reliability, test validity.

### Resumen:

La autodeterminación se sitúa como un buen predictor de la calidad de vida, entendida como una estrategia que pretende incrementar y mejorar las prácticas educativas centradas en las necesidades de la persona a nivel global, y a lo largo de su desarrollo vital. De ahí que la evaluación de este constructo haya experimentado notables avances en nuestro país, fruto de la acogida de modelos teóricos internacionales y del diseño de instrumentos específicos para nuestro contexto. La escala ARC-INICO (Verdugo et al., 2014) evalúa cuatro características de la conducta autodeterminada en adolescentes: autonomía, autorregulación, empoderamiento y autoconcepto, basándose en el Modelo Funcional de Wehmeyer (1999, 2003). Ha sido validada únicamente con estudiantes españoles con discapacidad intelectual y

del desarrollo. Este estudio pretende evaluar sus propiedades psicométricas con población adolescente gallega, comprobando su equivalencia tanto para su uso con jóvenes con Trastornos del Desarrollo Neurológico como sin ellos. Se emplea una muestra de 2220 estudiantes. La estructura de la escala fue estudiada mediante Análisis Factorial Confirmatorio, usando la propuesta original con una estructura factorial de orden superior correlacionada con cuatro factores, y un modelo unifactorial que asume la unidimensionalidad de la autodeterminación. Respecto a la fiabilidad, presenta una elevada consistencia interna global y en sus secciones. Aunque el modelo unifactorial ofrece un ajuste aceptable (Modelo 1: GFI = .958, AGFI = .941; RMSEA = .057), es superior en el modelo de orden superior (Modelo 2: GFI = .970, AGFI = .954; RMSEA = .049). Además, la medida de invarianza factorial muestra la utilidad del modelo 2 para comparar puntuaciones según la presencia o no de Trastornos del Desarrollo Neurológico. En conclusión, la ARC-INICO ofrece una base importante para la toma de decisiones respecto al diseño de programas de atención, mediante el desarrollo de recursos, pautas y estrategias, y dota de información para la provisión diferencial de dichos recursos y apoyos.

**Descriptor:** autodeterminación, adolescentes, cuestionario, fiabilidad del test, validez del test.

## 1. Introduction

The construct of self-determination is especially relevant in the design of educational practices that prioritize enabling children and adolescents to achieve progressively higher levels of independence, autonomy, control over their lives, and responsibility for their actions. Self-determination is, therefore, understood as a psychological construct that defines individuals as «active contributors to, or ‘authors’ of their behaviour» (Walker et al., 2011, p. 7). Accordingly, the perspective of the *individual’s capacity for action* is being adopted. This emphasises the acquisition and expression of a series of abilities and skills that permit the person to act as the primary causal agent in her life (Shogren & Wehmeyer, 2016; Shogren, Wehmeyer, Palmer, & Paek, 2013; Wehmeyer & Abery, 2013; Wehmeyer, Field, & Thoma, 2012; Wehmeyer & Shogren, 2018).

The adolescent period is the developmental stage in which the most experiential learning occurs, and this is orientated towards the individual gradually acquiring control over her behaviour and actions (Lee et al., 2012; Vega, Gómez-Vela, Fernández-Pulido, & Badia, 2013). In recent decades, there have been many studies focussing on offering a theoretical and conceptual framework for the construct of self-determination in adolescence (Adams, Little, & Ryan, 2017; Griffin, Adams, & Little, 2017; Murumbardó, Guàrdia, & Giné, 2018), with special emphasis on students with neuro-developmental disorders (Shogren et al., 2016; Shogren, Wehmeyer,

Schalock, & Thompson, 2017; Vicente, Guillén, Gómez, Ibáñez, & Sánchez, 2018; Wehmeyer, 2015).

Among these, the functional self-determination model stands out, developed by Wehmeyer between 1999 and 2003, which defines self-determination in terms of the acquisition and expression of four basic characteristics: autonomy, self-regulation, psychological empowerment or training, self-realisation and self-knowledge. To activate these components, the individual must possess a series of skills and abilities, which she acquires throughout her life, and which will enable her to act as the causal agent of the events that happen in her surroundings when expressing observable behaviour, enriched by her interactions with her setting and by the influence of the personal factors that intervene in her learning.

This model has had a broad impact in Spain, where study of this construct can be classed as relatively recent (Arelano & Peralta, 2013; Peralta & Arelano, 2014; Vega, et al., 2013; Vicente, Verdugo, Gómez-Vela, Fernández-Pulido, & Guillén, 2015; Vicente, Verdugo, Gómez-Vela, Fernández-Pulido, & Guillén, 2017). At present, a specific instrument has been designed to evaluate the degree of self-determination of Spanish adolescents: the ARC-INICO scale (Verdugo et al., 2014).

This instrument was designed to be applied to students with intellectual and developmental disabilities. Indeed, preliminary studies have been carried out

to establish the structure underlying the set of data provided by the ARC-INICO scale. These analyses were of two types: on the one hand, exploratory factor analysis (AFE), in which an effort was made to *explore* the structure of the relationships between the instrument's variables, without knowing in advance the number of factors or dimensions they comprise (e.g. the studies by Verdugo et al., 2014; Vicente et al., 2015) and, on the other hand, confirmatory factor analysis (AFC), to *confirm* a previously-established factorial or dimensional structure based on prior literature and formulated as a hypothesis (e.g. the study by Verdugo et al., 2015). In the present study, evaluating the level of self-determination is considered to be very useful, not just with students who have neuro-developmental disorders, but for all students. This tool could be used to diagnose the needs present in the classroom and individual needs to establish individual and group action plans.

Therefore, this study focusses on analysing the factorial structure of the ARC-INICO scale (Verdugo et al., 2014) in a sample of adolescents, for which the presence or absence of neuro-developmental disorders is considered. The aim of this factorial analysis is to identify the structure underlying the data matrix, through analysis of the relationships between the items that make up the scale and their simplification into various factors or defining dimensions of self-determination, in such a way that it enables us to expand our understanding of self-determination as a construct.

## 2. Method

### 2.1. Participants

The participants are 2,220 students (55.41% male and 44.59% female) from public and private ordinary and special schools in the Autonomous Region of Galicia, with ages ranging from 12 to 19 ( $M = 13.9$ ;  $SD = 1.59$ ).

### 2.2. Instrument

The ARC-INICO self-determination scale (Verdugo et al., 2014) is an adaptation of the original Arc self-determination scale (Wehmeyer, 1995; Wehmeyer & Kelchner, 1995). It comprises 61 items divided into four sections measuring autonomy (25 items), self-regulation (12 items), empowerment (14 items), and self-knowledge (10 items), coinciding with the proposal of the functional model (Wehmeyer, 1999, 2003). Participants answer on a 3-point Likert-type scale for the autonomy section, and a 4-point scale in the other sections. It is a questionnaire for that the participants complete themselves, although support can be offered if the adolescent requires it.

### 2.3. Data collection and procedure

Data collection took place in educational centres in the four provinces of the Spanish Autonomous Region of Galicia. After contacting the institutions and obtaining authorisation from the schools and families, the questionnaires were applied in the classes (groups of 20-25 students) or, in the case of students requiring support, they were applied individually with the students receiving support from their teachers and the

research personnel. After collecting the data, the questionnaires were reviewed and ones with five or more unanswered items were eliminated (176 questionnaire eliminated).

## 2.4. Information analysis process

To study the factorial structure of the ARC-INICO scale, item parcelling was used with the aim of reducing the breadth of the questionnaire and the idiosyncratic influence of the items measured individually (Bandalos, 2002; Bandalos & Finley, 2012). The parcelling of the items was based on the recommendations in the literature (Little, 2013; Little, Cunningham, Shahar, & Widaman, 2002): (a) selection of conceptually similar items and (b) ones that show a strong unidimensionality in exploratory factor analysis (EFA).

Exploratory factor analysis (EFA) is useful in this study as a preliminary measure before confirmatory factor analysis as it enables us to explore the extent to which the items that make up an instrument can be grouped coherently to offer an explanation of common variance (Bryman, 2016; Prieto & Delgado, 2010). To establish this value, the *total variance explained* calculation is normally used. This indicates what percentage of variance is represented by the set of items included.

Following this, a confirmatory factor analysis (CFA) was performed. The use of this type of analysis is justified by the *non-observable* nature of the construct under consideration (self-determination); in

other words, to be able to study the relationships between latent variables or indicators (that are not directly observable), it is necessary to use *observable indicators* (the answers to questionnaire items). To do this, a previously-bounded theoretical structure must be taken as a basis. In the case of this study, it refers to the following models:

- *Model 1. Unidimensional model:* this assumes the unidimensionality of the self-determination construct; in other words, for each section, there is a single factor in which all of the variables measured are saturated (parcels).
- *Model 2. Higher-order factorial model:* a structure with a higher level of abstraction is imposed, based on the influence of a higher-order factor (self-determination), which explains the co-variations between the two first-order factors (autonomy, self-regulation, empowerment, and self-knowledge). This hierarchical representation is supported by the functional self-determination model (Wehmeyer, 1999, 2003).

In each model, it was expected that: each observed variable would only be saturated in the factor it attempted to measure; that the measurement errors associated with said variables would not be correlated; and, in the case of model 2, that all of the covariances between each first-order factor would be better explained by a general dimension in which all of the items would saturate at the

same time in the higher-order factor (hierarchical model) (Kelloway, 2014; Kline, 2015).

Finally, the invariance of the scale was analysed to compare the results of the two different groups (adolescents with neuro-development disorders and ones without) to establish whether the measurements obtained from both groups are similar, and so whether its use is valid for both groups (Elosua, 2005). A multi-group analysis was performed using a progressive process (Byrne, 2008; Elosua, 2005): configural invariance (the pattern of factor loadings is the same), metric invariance (the pattern of loadings and the factorial weights are equal), and scalar invariance (this also entails equal variances for errors). To estimate the fit of the data, various indexes were used that make it possible to select the model from the two models considered that has the smaller discrepancy from the true model. These indexes are the Akaike information criterion (AIC) and Bentler's comparative fit index (CFI).

These analyses were supported by the IBM Statistical Package for the Social Sciences (IBM SPSS) version 23, and the confirmatory factor analyses were done using the IBM SPSS AMOS 23.0 program.

### 3. Results

#### 3.1. Preliminary analysis

Table 1 shows the final matrix comprising 13 parcels that represent the four sections of the ARC-INICO scale.

The eigenvalues and percentage of variance explained were calculated, corroborating the hypothesis that each parcel represents a unidimensional structure with eigenvalues above one and with over 50 % of the variance explained by each one. In addition, all of the parcels displayed adequate or high reliability, evaluated using Cronbach's Alpha index ( $\alpha \leq .80$ ).

Regarding univariate normality, the measurements of distribution of skewness and kurtosis are used, which make it possible to identify how the data sets group or separate around a central point. The skew values  $z(G1)$  for the parcels are greater and lesser at  $\pm 1.96$ , except in parcel P1\_4, where  $z(G1) = .29$  indicates a symmetrical distribution. Therefore, the null hypothesis of a symmetrical distribution is rejected in almost all of these cases. Furthermore, calculating the kurtosis indicates that the null hypothesis that the distribution is mesokurtic ( $z[G2] > \pm 1.96$ ) is not fulfilled in most cases, except for parcels P2\_1 ( $z[G2] = 1.587$ ), P2\_3 ( $z[G2] = -1.067$ ), P3\_2 ( $z[G2] = -1.442$ ), P3\_3 ( $z[G2] = 1.712$ ) and P4\_1 ( $z[G2] = 1.376$ ). In the skew and kurtosis comparison set, the assumption of univariate normality is not met as in all cases  $k^2 > 5.98$ . Finally, the Kolmogorov-Smirnov goodness-of-fit test, with Lilliefors' modification, indicates rejection of the null hypothesis of normality of the parcels as, for a 95 % confidence level, all of the values obtained are  $p < .005$ . Therefore, the hypothesis that the data are from a normal univariate distribution was rejected.

TABLE 1. Analysis of the unidimensionality and univariate normality comparisons of the ARC-INICO scale.

| Sections        | Parcels | Eigen-values<br><i>a</i> | % vari-<br>ance ex-<br>plained<br><i>b</i> | α<br>stand-<br>ardised | Skew     |           | Kurtosis      |          |           | K-S test      |                      |                        |          |
|-----------------|---------|--------------------------|--------------------------------------------|------------------------|----------|-----------|---------------|----------|-----------|---------------|----------------------|------------------------|----------|
|                 |         |                          |                                            |                        | <i>z</i> | <i>ET</i> | <i>z (G1)</i> | <i>z</i> | <i>ET</i> | <i>z (G2)</i> | <i>K<sup>2</sup></i> | <i>K-S<sup>a</sup></i> | <i>p</i> |
| Autonomy        | P1_1    | 4.95                     | 82.442                                     | .957                   | .28      | .052      | 5.46          | -.43     | .104      | -4.16         | 47.16                | .337                   | .00      |
|                 | P1_2    | 4.45                     | 55.637                                     | .884                   | -.79     | .052      | -15.23        | -.40     | .104      | -3.87         | 246.92               | .179                   | .00      |
|                 | P1_3    | 4.27                     | 71.179                                     | .917                   | -.18     | .052      | -3.40         | -.87     | .104      | -8.35         | 81.24                | .188                   | .00      |
|                 | P1_4    | 3.72                     | 74.476                                     | .913                   | .02      | .052      | 0.29          | .30      | .104      | 2.86          | 8.24                 | .244                   | .00      |
| Self-regulation | P2_1    | 4.81                     | 96.146                                     | .990                   | -.23     | .052      | -4.48         | .17      | .104      | 1.59          | 22.60                | .319                   | .00      |
|                 | P2_2    | 3.84                     | 96.006                                     | .986                   | -.39     | .052      | -7.52         | .22      | .104      | 2.09          | 60.89                | .288                   | .00      |
|                 | P2_3    | 2.45                     | 59.861                                     | .857                   | -.32     | .052      | -6.15         | -.11     | .104      | -1.07         | 39.01                | .294                   | .00      |
|                 | P3_1    | 3.87                     | 77.439                                     | .911                   | -.48     | .052      | -9.31         | .26      | .104      | 2.53          | 93.04                | .147                   | .00      |
| Empowerment     | P3_2    | 3.64                     | 90.924                                     | .967                   | -.27     | .052      | -5.21         | -.15     | .104      | -1.44         | 29.24                | .253                   | .00      |
|                 | P3_3    | 2.88                     | 98.648                                     | .978                   | -.44     | .052      | -8.46         | .18      | .104      | 1.71          | 74.54                | .311                   | .00      |
|                 | P4_1    | 3.79                     | 94.781                                     | .972                   | -.25     | .052      | -4.87         | .14      | .104      | 1.38          | 25.04                | .307                   | .00      |
| Self-knowledge  | P4_2    | 3.45                     | 86.288                                     | .947                   | -.98     | .052      | -18.92        | .71      | .104      | 6.83          | 404.69               | .204                   | .00      |
|                 | P4_3    | 2.95                     | 73.803                                     | .881                   | -.71     | .052      | -13.67        | .52      | .104      | 5.01          | 212.05               | .174                   | .00      |

Note:

a. Eigenvalues: these reflect, in decreasing order, the degree of variation in the set of variables, which explains the factor, or in other words, the amount of information each variable provides to the factor. The sum of all of the eigenvalues being equal to the number of variables introduced in the analysis.

b. % Variance explained: the percentage of variance is represented by the set of items included.

Initials and Statistics: α – Cronbach’s Alpha index; K-S Comparison: Kolmogorov-Smirnov test comparison to calculate the normality of the distribution; z – Statistical value referring to the standard deviation obtained for one variable, compared with the value of the mean; SE: Standard Error, indicating oscillations compared with the value of Z.

Source: Own elaboration.

TABLE 2. Correlation between parcels on the ARC-INICO scale.

|      | P1_1   | P1_2   | P1_3   | P1_4   | P2_1   | P2_2   | P2_3   | P3_1   | P3_2   | P3_3   | P4_1   | P4_2   | P4_3 |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| P1_1 | 1      |        |        |        |        |        |        |        |        |        |        |        |      |
| P1_2 | .399** | 1      |        |        |        |        |        |        |        |        |        |        |      |
| P1_3 | .335** | .593** | 1      |        |        |        |        |        |        |        |        |        |      |
| P1_4 | .231** | .268** | .298** | 1      |        |        |        |        |        |        |        |        |      |
| P2_1 | .300** | .366** | .324** | .249** | 1      |        |        |        |        |        |        |        |      |
| P2_2 | .330** | .458** | .416** | .335** | .441** | 1      |        |        |        |        |        |        |      |
| P2_3 | .317** | .407** | .362** | .223** | .488** | .447** | 1      |        |        |        |        |        |      |
| P3_1 | .249** | .374** | .323** | .275** | .351** | .429** | .327** | 1      |        |        |        |        |      |
| P3_2 | .260** | .389** | .317** | .181** | .290** | .313** | .287** | .465** | 1      |        |        |        |      |
| P3_3 | .303** | .466** | .385** | .205** | .300** | .376** | .358** | .349** | .359** | 1      |        |        |      |
| P4_1 | .202** | .393** | .318** | .194** | .352** | .387** | .311** | .387** | .315** | .320** | 1      |        |      |
| P4_2 | .137** | .157** | .110** | .129** | .228** | .233** | .227** | .274** | .186** | .098** | .224** | 1      |      |
| P4_3 | -.012  | .074** | .054*  | .081** | .153** | .144** | .067** | .224** | .141** | .096** | .241** | .188** | 1    |

Note: \* $p < .05$  \*\* $p < .001$ . This value refers to the probability associated with the statistic, which gives information about acceptance of the hypothesis that there are statistically significant correlations, with an associated confidence level of 95 %.

Source: Own elaboration.

To test multivariate normality, the normality and outliers test in IBM SPSS AMOS 23 was performed. The value of the multivariate kurtosis ( $g^2 = 11.91$ ;  $cr = 14.20$ ) indicates that the variables display a kurtosis which is significantly different from a normal multivariate analysis. The analysis of multivariate outliers using the Mahalanobis distance figure ( $D^2$ ) indicates the presence of 15 extreme values ( $p < .001$ ). It was decided not to exclude or convert them, as they are errors that reflect the idiosyncrasy of the students sampled.

Multicollinearity was verified by calculating the correlation matrix, as shown in Table 2. The remaining values show the absence of multicollinearity in the data, with values lower than .90; the highest correlation coefficient found was  $r_{xy} = .593$  between parcels P1\_2 and P1\_3.

Finally, Cronbach's Alpha index ( $\alpha$ ) was analysed for each section and for the scale. This index makes it possible to determine the degree of reliability of the instrument used. The results show high reliability for the scale ( $\alpha = .957$ ) and for its four sections (autonomy  $\alpha = .927$ ; self-regulation  $\alpha = .945$ ; empowerment  $\alpha = .915$ ; self-knowledge  $\alpha = .867$ ).

### 3.2. Confirmatory Factor Analysis

Given the non-compliance with the assumptions of normality and linearity, the weighted least squares (WLS) estimation method was used, which AMOS defines as asymptotically distribution-free (ADF). Various fit indexes were used to

evaluate and test goodness of fit (Kelloway, 2014; Kline, 2015): firstly, the chi-squared statistic ( $\chi^2$ ) and its relative version ( $\chi^2 / df$ ) to evaluate the general fit, where a non-significant  $\chi^2$  and values of  $\chi^2 / df < 2$  indicate a good fit; and secondly, given these indexes' sensitivity to variations in sample size, addition indexes were used to evaluate the absolute partial fit: root mean square residual ( $RMR \leq .08$  shows an adequate fit); goodness of fit index (GFI) and adjusted goodness of fit index (AGFI), which should have a value of .90 or more. Furthermore, the parsimony of fit was evaluated using the root mean square error of approximation ( $RMSEA \leq .08$  shows an adequate fit) and non-nested models, which indicate that the model has a lower discrepancy with the true model (Akaike information criterion, AIC and consistent Akaike information criterion, CAIC) and they contain more generalisable data (expected cross validation index). Once the best factor solution for the scores on the ARC-INICO scale had been found, the composite reliability (CR) and McDonald's  $\omega$  were calculated.

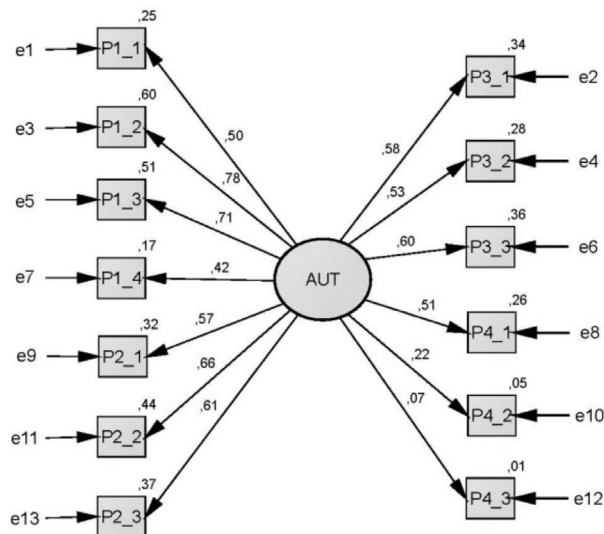
#### 3.2.1. Model 1: Unidimensional Model

The first model examined supposes the existence of a single factor, which explains the covariance of all of the items in the test. This corresponds to a unidimensional theoretical conception of self-determination. Given the lack of empirical evidence to support the unidimensionality of this construct, this model is used as an element of comparison with regards to the possible multidimensional estimates.

Graph 1 shows the initial standardised solution for model 1. All of the coefficients are significant (t values significantly different from 0), with prediction errors that vary from .01 to .60, so that the squared correlation coefficients ( $r^2$ ) vary from .99 to .40. Almost all of the figures for  $r^2$  are greater than .5, with the exception of P1\_2 and P1\_3. These results indicate that the proportion of the variance in the

observed variables that can be explained by the latent factor (self-determination) approximates to the appropriate value, so long as the variables that are far from the optimal values are eliminated. The factor loadings range between .07 and .78, six of them being lower than .6. This could indicate that the single-factor model is not sufficient to reproduce the original covariance matrix.

GRAPH 1. Standardised parameters of Model 1 (Unidimensional Model).



Source: Own elaboration based on IBM SPSS AMOS 23.

When analysing the model's fit with the empirical data, the figures for which are shown in Table 3, deficient indexes of fit can be seen ( $\chi^2$  528.929;  $\chi^2 / df = 8.145$ ;  $p < .000$ ), and a partial fit that can be improved in the evaluation of the model using the RMR and RMSEA indexes (RMR = .648; RMSEA = .057). There is also a specification error ( $p = .007$ ). In contrast with this, some absolute partial fit indexes have satisfactory results (GFI = .958; AGFI = .941).

### 3.2.2. Model 2: Higher-Order Factorial Model

This model derives from a proposal for self-determination as a factorial and hierarchical construct in which, within a general self-determination factor (second-order factor), there are four factors (first-order factors) grouped by the parcels corresponding to autonomy, self-regulation, empowerment, and self-knowledge.

TABLE 3. Goodness of fit statistics.

|         | Absolute fit |    |      |               |  | Partial fit |      |      |                       |      |                         |
|---------|--------------|----|------|---------------|--|-------------|------|------|-----------------------|------|-------------------------|
|         |              |    |      |               |  | Absolute    |      |      | Parsimonious          |      |                         |
|         |              |    |      |               |  | RMR         | GFI  | AGFI | RMSEA                 | P    | Non-Nested Parsimonious |
|         | $\chi^2$     | gl | P    | $\chi^2 / df$ |  |             |      |      |                       |      |                         |
| Model 1 | 528.929      | 65 | .000 | 8.137         |  | .648        | .958 | .941 | .057<br>[.052 – .061] | .007 | 580.93<br>755.27        |
| Model 2 | 420.1        | 60 | .000 | 6.334         |  | .553        | .970 | .954 | .049<br>[.044 – .054] | .623 | 442.03<br>649.89        |

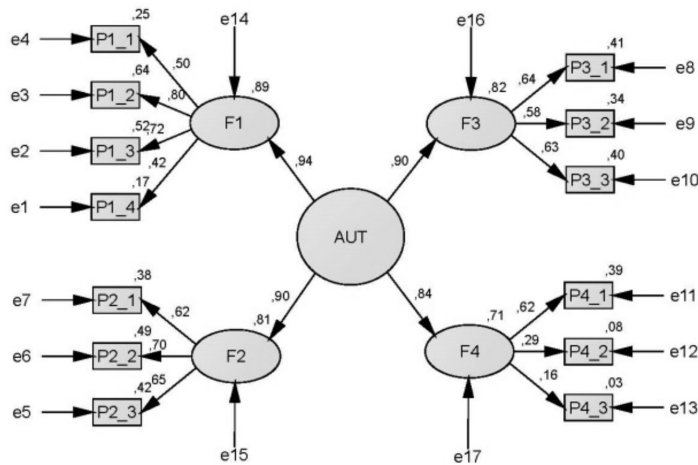
Note:  $\chi^2$ : chi-square; df: degrees of freedom;  $\chi^2 / df$ : relative  $\chi^2$ ; RMR: root mean square residual; GFI: goodness of fit index; AGFI: adjusted goodness of fit index; RMSEA: root mean square error of approximation; AIC: Akaike information criterion; CAIC: consistent Akaike information criterion; ECVI: expected cross validation index.

Source: Own elaboration based on IBM SPSS AMOS 23.

From the empirical perspective, this model establishes independence relating to the four sections of ARC-INICO, which are grouped into a single general second-order factor. Graph 2 shows the standardised solution, which shows prediction errors varying from .03–.64 with coefficients of determination of .36 to .97. The factor loadings for the endogenous

variables in the observed variables display fairly high values (range: .80–.94), with loadings greater than 0.4 (except for  $P4\_2 = .29$  and  $P4\_3 = .16$ ). The same circumstance is seen in the factor loadings of the endogenous variables compared with the exogenous variables (range .84–.94), although their prediction errors are also high ( $.70 \leq e \leq .89$ ).

GRAPH 2. Standardised parameters of Model 2 (higher-order factorial model).



Source: Own elaboration based on IBM SPSS AMOS 23.

The empirical results, shown in Table 3, indicate that this model has a better fit than the previous one, with higher values ( $GFI = .970$ ;  $AGFI = .954$ ;  $RMSEA = .049$ , and  $RMR = .553$ ) with a  $PCLOSE$  value = .623 indicating a good fit of the data for a 90% confidence level. In addition, if we take into account the magnitude of  $\chi^2 / df$  ( $420.1 / 60$ ), it should be noted that this model has a better fit than model 1, given its smaller size. As was expected, in accordance with the theoretical backing of the multidimensional models of self-determination, it can be said that this model has a better fit with the data, as it takes into account

the existence of first-order factors that correspond with the four sections defined rationally in the test.

### 3.3. Comparison of models

Finally, regarding the parsimonious indexes of fit that compare the non-nested models, Akaike's AIC and its consistent version (CAIC) are interpreted in such a way that their lowest value fits the specified model better (West, Taylor, & Wu, 2015). Likewise, the interpretation of the expected cross validation index (ECVI) is based on the comparison between models, assuming that the model with the lower value is the one with the greatest poten-

tial for replication (Browne & Cudeck, 1993). Consequently, the comparison between the models based on these indexes indicated a better fit for model 2, as shown in Table 3.

### 3.4. Factorial Invariance Analysis

Based on Abalo, Lévy, Rial, and Varela (2006), the same model was estimated (Model 2) for two samples of students depending on whether they have neuro-development

disorders. The indexes of fit obtained are shown in Table 4. These make it possible to accept the equivalence of the basic measurement models between the two samples. Although the chi-squared value exceeds that required to accept the invariance hypothesis, the other indexes contradict this conclusion (GFI = .966, AGFI = .949, RMSEA = .036; AIC = 594.9; CFI = .718) which enables us to accept the base invariance model (unrestricted model).

TABLE 4. Goodness of fit indexes of Model 2 in factorial invariance.

| Model                | CMIN     | df  | GFI  | AGFI | NFI  | CFI  | RMSEA | AIC   |
|----------------------|----------|-----|------|------|------|------|-------|-------|
| Without restrictions | 470.906* | 120 | .966 | .949 | .663 | .718 | .036  | 594.9 |
| Metric invariance    | 587.051* | 129 | .958 | .940 | .580 | .632 | .040  | 693.1 |
| Scalar invariance    | 587.669  | 132 | .958 | .942 | .580 | .633 | .039  | 687.7 |

Note: \* $p < .05$ .

Source: Own elaboration based on IBM SPSS AMOS 23.

Metric invariance was obtained by adding restrictions on factor loadings to the base model. The values shown in Table 4 make it possible to accept this level of invariance. The GFI (.958) and RMSEA (.040) continue to provide convergent information in this sense. Furthermore, the AIC (693.051) does not undergo large variations. Even so, the CFI (.632) has fallen. The criteria for evaluating nested models proposed by Cheung and Rensvold (2002) was used. This suggests that the restricted model should be regarded as good when the calculation of the difference in CFI for both nested models falls to .01 or less and so factorial invariance is achieved. Furthermore, the difference between the CFIs also allows us to accept the metric

invariance model. We can conclude that the factor loadings are equivalent in both samples.

After demonstrating metric invariance between samples, the equivalence between intercepts was evaluated (strong factorial invariance). The indexes (Table 4) display a good fit for this model, with both of them evaluated independently and analysed with regards to their nesting with the metric invariance model. The difference between the Bentler comparative indexes is .001. The GFI is .958 and RMSEA is .039. If strong invariance is accepted, both of the models evaluated are equivalent with regards to the coefficients of the factor and to the intersections.

In both cases, confirmatory factor analysis (CFA) results display a good fit for the higher-order factorial model. The subgroup with the better fit is the one comprising students who do not have neuro-developmental disorders. In any case, the generally uniform fit between the groups suggested that the four-factor solution is appropriate for these subgroups from the sample.

### 3.5. Reliability and correlation between factors

Finally, the reliability and validity of the final model and the correlations between the latent variables were tested. Firstly, composite reliability (CR) was calculated, which indicates the consistency of all of the constructs ex-

tracted from the analysis. This figure is excellent for the model in general ( $CR = .924$ ), and adequate in the second-order factor ( $CR = .799$ ), and in the first-order factors ( $.696 \leq CR \leq .808$ ). Secondly, the general saturation of the scale is studied with the aim of testing convergent validity using McDonald's  $\omega$ , which gives excellent results for the total scale ( $\omega = .922$ ), and adequate results for the second-order factor ( $\omega = .552$ ), and for each first-order factor ( $\omega = .821 - .700$ ). Finally, the correlation coefficients between the latent variables in Model 2 were calculated, which indicate the extent to which the model's variables vary jointly, and the extent to which they vary with regards to the model (Table 5).

TABLE 5. Correlation coefficients between endogenous variables in Model 2 and self-determination.

|                    | Self-determination | Autonomy | Self-regulation | Empowerment | Self-knowledge |
|--------------------|--------------------|----------|-----------------|-------------|----------------|
| Self-determination | 1                  |          |                 |             |                |
| Autonomy           | .846               | 1        |                 |             |                |
| Self-regulation    | .820               | .593     | 1               |             |                |
| Empowerment        | .798               | .564     | .543            | 1           |                |
| Self-knowledge     | .639               | .309     | .424            | .430        | 1              |

Source: Own elaboration.

The results show reasonably satisfactory values given that the correlation coefficients between first-order factors ( $r = .309 - .593$ ), indicate a relationship of 30.9% to 59.3% between autonomy, self-regulation, empowerment, and self-knowledge. Similarly, the self-deter-

mination construct has a very good relationship with the variables that define it, reaching 84.6% ( $r = .846$ ) with regards to autonomy, 82% ( $r = .820$ ) regarding self-regulation, 79.8% ( $r = .798$ ) regarding empowerment, and 63.9% ( $r = .639$ ) regarding self-knowledge.

#### 4. Discussion

The aim of this study was to collect information about the validity and reliability of the ARC-INICO scale for evaluating self-determination, designed by Verdugo et al. (2014) by expanding the study population, not just to adolescents with neuro-development disorders, but also to young people in general, aged between 12 and 19. The aim of this validation goes beyond the research aim, as it intends to test its usefulness as a tool for evaluating individual and group needs to guide the design of educational ideas aimed at improving the personal control, autonomy, and independent life of young people. Likewise, an analysis of factorial invariance was included with which to test the equivalence of the structure obtained through confirmatory factor analysis in two different groups: students with and without neuro-developmental disorders.

Self-determination is an educational approach that encompasses all students and has an essential perspective on their development and learning. The change proposed from the self-determination perspective and the improvement in the quality of life allude to the importance of focussing attention on the student as the central figure in her education. Therefore, the support or assistance each student requires should be evaluated with the greatest precision and reviewed frequently by professional teams.

As a result, it is important to have a valid instrument and a theoretical

referent that make it possible to conceptualise this construct. The evaluation and comparison of the fit of two different theoretical models (unidimensional model and higher-order factorial model) has made it possible to confirm the results of previous research which showed that self-determination is a multidimensional construct, comprising a structure with four factors: autonomy, self-regulation, empowerment, and self-knowledge, whose covariations are explained by the higher-order factor: self-determination (Wehmeyer, 1999, 2003; Verdugo et al., 2014). The CFA revealed adequate indexes of fit (CFI, GFI, AGFI, and RMSEA) with significant parameters in almost all cases, as well as a better fit in terms of the non-nested model when compared with the unidimensional model.

Similarly, in relation to the multi-group CFA an adequate fit was obtained for the data with the higher-order model in both samples: adolescents with and without neuro-developmental disorders. This suggests that this multidimensional model for measuring the self-determination of all students is viable. Furthermore, the comparison between the groups reflects significant differences with a higher level of self-determination in respondents who do not have neuro-development disorders compared with those who do. In this sense, several studies show worse self-determination results in students with various support needs (Cho, Wehmeyer, & Kinston, 2013; Chou, Wehmeyer, Palmer, & Lee, 2016; Vega et al., 2013).

This evidence suggests that the ARC-INICO scale is a valid and reliable scale for studying self-determination in adolescence, with Wehmeyer's functional model (1999, 2003) being an adequate representation of this construct. In this respect, it is possible to refer to other studies with similar results. For example, Verdugo et al. (2014) and Vicente et al. (2015) carried out studies of the psychometric properties of this scale, through exploratory and confirmatory factor analysis, which support a structure comprising four independent factors. Similarly, these studies support the results found in relation to the values of the correlation coefficients between first-order factors and with regards to the second-order factor.

This study has several implications for educational practices. Education has a special role in training and supporting students, especially the most vulnerable ones, so that they can acquire control over and responsibility for their actions and decide how to live their own lives (Arellano & Peralta, 2013; Lee et al., 2012; Wehmeyer et al., 2012; Wehmeyer & Shogren, 2018; etc.). These supports refer to aspects such as «the provision of professional interventions, the creation of settings and the presentation of individualised support strategies» (Schalock, 2018, p. 12), which require prior evaluation that makes it possible to determine the need for support and a final evaluation of the impact of the interventions on personal results. Consequently, it is important to develop and validate solid diagnostic tools as a basis

for designing actions intended to lead to educational, personal, and social improvement.

We conclude by emphasising the importance of continuing with this line of research in order to corroborate or refute the data obtained in this study, also taking into account the limitations stated in it, such as:

- a) The threat to the possibility of generalising these results given that all of the participants are Galician students. This could be overcome by expanding the sample to include students from other autonomous regions of Spain.
- b) The use of a self-report measure, which derives from the instrument being evaluated itself, and which could contain biases deriving from social desirability.
- c) The rapid advance in international research in the field of self-determination, which offers new empirical evidence including the foundations for constructing a new theoretical model and for developing evaluation and promotion tools.

One example of this is causal agency theory (Shogren, Wehmeyer, Palmer, & Forber-Pratt, 2015; Shogren et al., 2016; Shogren, Wehmeyer, & Burke, 2017), which proposes an extension of the functional model, focussing on the theoretical and practical reformulation of the original model and giving particular importance to the individual's capacity for action, defined as being able to «act as the primary

causal agent in one's life» (Shogren et al, 2015, p. 258). Even so, this new formulation should be regarded as a way of going into greater depth in the aspects relating to the individual's personality, motivation, and personal development, completing and opening necessary and emerging lines of research, but it does not replace the functional model.

## Notes

<sup>1</sup> A first approach to the subject of this article was presented at the AIDIPE Congress, in Salamanca, June, 2017.

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# Changes in Psychology students' workload due to alignment with the EHEA

## Cambios producidos por la adaptación al EEES en la carga de trabajo de estudiantes de Psicología

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### Abstract:

Alignment with the European Higher Education Area (EHEA) has involved changes in teaching methodology and in the learning process, which have led to a change in student workload. The main aim of this study is to evaluate and compare the perception of the workload of undergraduate and graduate psychology students and to analyse the nature of the changes produced by this adaptation. The sample comprised 845 students (497 readings for the licentiate's degree and 348 for the bachelor's degree). To measure perceived workload, the NASA-TLX scale was used. This evaluates the following dimensions: mental demand, physical demand, temporal demand, performance, and frustration/dissatisfaction; these variables were evaluated for the follow-

ing academic activities: attending theoretical classes, attending practical classes, conducting group work outside the classroom, searching for material and bibliography, studying and personal work, attending tutorials, and other activities (seminars, conferences, etc.). The results show a significant increase in the perceived load of attendance in practical classes, in the performance of group work outside the classroom and in total perceived workload for bachelor's degree students. It is concluded that adjusting to the EHEA has involved an increase in perceived workload for students. This points to a need to work in the classroom on developing interpersonal skills and planning and organization of teamwork, as well as greater coordination between teachers in the evaluation systems.

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**Keywords:** European Higher Education Area, workload, NASA-TLX, students, psychology, higher education.

## Resumen:

La adaptación al Espacio Europeo de Educación Superior (EEES) ha supuesto una importante modificación en la metodología docente y en el proceso de aprendizaje, lo que ha generado un cambio respecto a la carga de trabajo del alumnado. El principal objetivo de este estudio es evaluar y comparar la percepción de la carga de trabajo de estudiantes de Psicología de la licenciatura y del grado y analizar la naturaleza de los cambios producidos por esta adaptación. La muestra utilizada estuvo formada por 845 estudiantes (497 de licenciatura y 348 de grado). Para la medida de la carga percibida se empleó la escala NASA-TLX, que evalúa las siguientes dimensiones: demanda mental, demanda física, demanda temporal, rendimiento y frustración/insatisfacción; estas variables fueron evaluadas para las siguientes

actividades académicas: asistencia a clases teóricas, asistencia a clases prácticas, realización de trabajos en grupo fuera del aula, búsqueda de material y bibliografía, estudio y trabajo personal, asistencia a tutorías y otras actividades (seminarios, jornadas, etc.). Los resultados muestran un aumento significativo en la carga percibida de la asistencia a clases prácticas, en la realización de trabajos en grupo fuera del aula y en la carga total percibida para los estudiantes de grado. Se concluye que la adaptación al EEES ha supuesto un incremento en la percepción de carga de trabajo de los estudiantes, lo que apunta a la necesidad de trabajar en las aulas el desarrollo de competencias interpersonales y de planificación y organización del trabajo en equipo, así como una mayor coordinación docente entre los sistemas de evaluación.

**Descriptores:** Espacio Europeo de Educación Superior, carga de trabajo, NASA-TLX, estudiantes, psicología, Educación Superior.

## 1. Introduction

The objectives of the European Higher Education Area (EHEA), which is the result of the Bologna Declaration (1999), include obtaining high employability rates, improving the competitiveness of the higher education system in Europe, and promoting mobility with the ultimate aim of promoting a European dimension in the higher education system (Ariza, Quevedo-Blasco, Bermúdez,

& Buela-Casal, 2013). To achieve these objectives, a transformation in the structure of teaching was proposed through the European Credit Transfer and Accumulation System (ECTS), a system that distributes the student's workload over estimated hours, some face-to-face (classes, evaluations, etc.), some outside class with tutoring (guided work and tutorials) and some independent outside class (individual study and activities).

The adjustment to the EHEA has involved important changes at the institutional level and in syllabuses (Ariza, Bermúdez, Quevedo-Blasco, & Buela-Casal, 2012; Ortega & Zych, 2013), and in the teaching methodologies used, with the incorporation of more active methods (such as attending seminars, solving problems as a team, doing projects and presentations, etc.) that give students more autonomy in a learning style with less face-to-face work and more personal work. These modifications also involve a change to a more constructivist teaching and learning process (Tejada & López, 2012), focussed on the acquisition of competences and on continuous work by the student (De Miguel, 2006; Rodrigo & Almirón, 2013), which involves a greater load of work outside class (Díez, García, & IPDDA, 2010; Ortiz et al., 2012).

One of the fundamental issues in the new syllabuses is the students' workload (Roca-Cuberes, 2013). Workload can be defined as the hours students spend working on academic tasks at the educational centre (attending classes, tutorials, seminars) and away from it (groupwork, study, bibliographic consultations, etc.). In other words, it relates to the time required to complete an academic year and acquire the competences established as the learning outcomes.

The literature we have consulted agrees that adapting the workload to the credits established in the syllabuses is one of the main problems facing teaching staff (Reyes, Valdés, & Castaño, 2006) and that the ECTS system involves an increase in student

workload (Castaño, Ruiz, Gómez-Alday, & De Manuel, 2006; Roca-Cuberes, 2013; Rodríguez-Izquierdo, 2014).

Although this educational reform was officially introduced in 2010, there are no empirical studies that analyse the effect of this adjustment from the students' perspective, especially in the case of teaching psychology (Ramiro-Sánchez, Bermúdez, & Buela-Casal, 2016). Consequently, there is a clear lack of studies that explore the impact of these changes on the perceived workload of students who are reading for a bachelor's in psychology compared with those studying under previous system (licentiate degree). For example, Ortiz et al. (2012), from a perspective based on studying the time dedicated to each task, found differences in the workloads of licentiate and bachelor's degree students, and they note that the change in teaching-learning methodologies should be considered from the perspective of the students.

Students' perceived workload can have a very important influence on the level of academic performance they obtain and on their psychological wellbeing, as it is one of the main causal factors of academic stress (Cabanach, Souto-Gestal, & Franco, 2016). Excess workload makes it hard to acquire knowledge and promotes superficial learning (Lam, McNaught, Lee, & Chan, 2012; Roca-Cuberes, 2013), failure, and dropout (Cope & Staehr, 2005).

Student workload was evaluated from different perspectives. It has traditionally been linked to how many hours students dedicate to the modules that make

up their degree (Ruiz-Gallardo, Castaño, Gómez-Alday, & Valdés, 2011), although in a small number of cases students' perception of their workload has also been analysed (Kyndt, Dochy, Struyven, & Cascallar, 2011). This second focus assumes that students' perceived workload is shaped by various factors and that this perception is the largest stress creating factor (Ramsden, 1992). On these lines, Kember and Leung (2006) found that many hours of study are not perceived as a large overload when the course design is appropriate, and they underline the limited relationship between time spent on a task and perceived workload (Hertzum & Holmegaard, 2013; Nosair & Handy, 2017).

One of the most frequently used instruments for evaluating perceived workload is the NASA-Task Local Index (TLX) (Hart & Staveland, 1988). González, Moreno, and Garrosa (2005), Hart (2006), and Young, Zavelina, and Hooper (2008) identify the useful features of NASA-TLX as a valid and reliable instrument for analysing perceived workload in different sectors: industrial, psychological, health, aeronautical, and transport. However, it has been used less in the field of education. López-Núñez (2010) analyses the generalisability and validity of each scale with a broad sample of university students and concludes that it is a useful instrument for evaluating workload in an educational setting. Kyndt et al. (2011) use NASA-TLX to evaluate the workload with the objective of analysing its mediating role in student motivation and their learning strategies. Similarly, Kurata,

Bano, and Matias (2015) use NASA-TLX on engineering students, finding significant relationship between workload and academic performance.

Almost two decades after the Bologna Declaration (1999) and in the midst of the changes to accreditation of qualifications adapted to the EHEA, this seems to be an appropriate time to evaluate the effects of this adaption. The change seems to have been positive in regards to the inclusion of new technology (ITC) and methodologies that permit greater interaction with students. However, other aspects such as increased workload, both for teaching staff and students, do not seem to be as positive (Ariza et al., 2013; Quevedo-Blasco, Ariza, & Buela-Casal, 2015).

Therefore, the aim of this study is to analyse and compare the perceived workload of psychology students on the licentiate degree (old system) and of students on the new system adapted to the EHEA (bachelor's) to investigate the nature of the changes in this variable.

## 2. Method

### 2.1. Participants

The sample comprised 845 third-year Psychology students from the Universidad Complutense de Madrid, 497 of whom were licentiate students and 348 bachelor's students. Regarding distribution by sex, there were 415 women on the licentiate degree (83.5%) and 82 men (16.5%), and 282 women (81%) and 66 men (19%) on the bachelor's degree. The mean age of students on the licentiate degree was 21.63

( $SD = 3.33$ ). On the bachelor's degree it was 21.85 ( $SD = 3.53$ ). The data were collected in a single session during one of the third-year classes, for both the licentiate degree and the bachelor's degree, using convenience sampling.

## 2.2. Instrument

The NASA-TLX scale was used to assess workload (Hart & Staveland, 1998). This instrument distinguishes six workload dimensions, each of which is evaluated by the subjects on a scale of 0 to 100. These dimensions are: *effort* (the general level of mental and physical effort required to obtain a suitable level of performance), *mental demand* (the amount of mental and perceptive activity the task requires), *physical demand* (the amount of physical activity the task requires), *temporal demand* (the perceived level of temporal pressure), *performance* (the level of satisfaction with one's own level of performance in the task) and *frustration/dissatisfaction* (the level of insecurity, irritation, or dissatisfaction felt while performing the task). The students had to evaluate the degree to which each of their academic activities demanded each workload dimension from them. Seven academic activities were identified: attending theoretical classes, attending practical classes, conducting group work outside the classroom, searching for material and bibliography, studying and personal work, attending tutorials, and other activities (seminars, conferences, etc.).

These activities were chosen taking into account the changes imposed by the EHEA and the importance it gives to au-

tonomous work by the student and the competence acquisition, including specific competences ones relating to the qualification and transversal ones, for students' integration into the social and workplace environment.

Using the evaluations given by each student, an overall workload index was calculated for each activity by calculating the arithmetic mean for the scores from each dimension (Hart, 2006).

Additionally, each participant answered a brief demographic questionnaire to collect information on sex and age.

## 2.3. Design and Procedure

This is a non-experimental, ex post facto study.

The NASA-TLX scale, in its implementation phase initially had two sections: a weighting section and a scoring section. The weighting section was intended to reveal the subjects' initial perceived workload and the relative importance of each of the six dimensions in this perception. However, many studies have underlined that it is not necessary to do the weighting stage (López, Rubio, Martín, & Luceño, 2010), showing high correlation values between weighed and unweighted scores (between .93 and .97). For this reason, we only used the scoring section. All of the students took part anonymously and completely voluntarily, having first signed an informed consent form to agree to participate in the study and agreeing to the use of the data for research-related ends exclusively.

## 2.4. Statistical analysis

All of the analysis was done using the Statistical Package for the Social Science (SPSS) version 22.00 software. Firstly, the descriptive statistics for all of the variables considered were calculated. Next, the equivalence of the two groups by average age and distribution by sex was tested using the  $\chi^2$  statistic (for sex) and Student's  $t$  test (for age). After this, a comparison of means analysis was performed on the workload scores obtained for both groups (licentiate degree vs. bachelor's) for each of the academic activities. To do this, Student's  $t$  value was calculated along with its level of significance  $p$  (set at .05) and partial  $\eta^2$  to test the effect size.

## 3. Results

Firstly, the means and standard deviations (SD) were calculated for the workload scores (for each workload dimension and for the overall score) in both groups (licentiate and bachelor's degrees) (Table 1). The total workload scores were obtained by averaging the workload scores for all of the dimensions and activities.

The results showed that the groups were equivalent in distribution by sex ( $\chi^2 = 1.70, p = .430$ ) and by mean age [ $t(913) = -0.66, p = .508$ ], as neither figure was significant.

Once compliance with the assumption of homogeneity of variance had been tested using Levene's test ( $P > 0.5$  in all cases), comparisons of means for the overall scores for each activity were done for each type of degree. The results of this analysis

are shown in Table 1. Analysing this table shows that bachelor's students perceive a higher workload than the ones on the licentiate degree in all of the activities considered other than «studying and personal work». The differences in the «conducting group work outside the classroom» and «attending practical classes» activities were statistically significant, as were the scores for overall workload. In the three activities, the group of students on the bachelor's degree displayed considerably higher workload scores. The  $\eta^2$  values show that the effect size is higher for the «conducting group work outside the classroom» activity, indicating that the difference is most evident with this activity.

With the aim of analysing in greater detail which workload dimension or dimensions cause these differences, comparisons of means were carried out between bachelor's and licentiate degrees for each of the 6 dimensions of the NASA-TLX for the activities in which significant results were found in the previous analysis. The results of this analysis are shown in Table 2.

For the «attending practical classes» activity, the results only show large and statistically significant differences in the *mental demand* dimension, indicating that bachelor's degree students regard this academic activity as rather more demanding from a cognitive perspective than their licentiate counterparts. For «conducting group work outside the classroom», the results show greater differences than for the previous activity. In this case, the differences between both groups were statis-

tically significant in all of the dimensions except in *performance*. These results suggest that doing group work outside class hours is a much more demanding activity at all levels for bachelor's students, who

have to make a greater effort to achieve very similar levels of performance. This in turn creates more marked feelings of frustration. The results for the total workload score are similar.

TABLE 1. Mean (M) and standard deviation (SD) for the overall workload for each activity and results of the comparison of means across qualifications.

|                                                | Licentiate       | Bachelor's       |        |      |          |
|------------------------------------------------|------------------|------------------|--------|------|----------|
|                                                | M (DT)           | M (DT)           | t(843) | p    | $\eta^2$ |
| Attending theoretical classes                  | 52.86<br>(12.29) | 53.35<br>(13.09) | -0.55  | .581 | .000     |
| Attending practical classes                    | 47.80<br>(13.82) | 49.80<br>(13.00) | -2.11  | .035 | .005     |
| Conducting group work outside the classroom    | 49.63<br>(14.81) | 55.01<br>(13.44) | -5.38  | .000 | .033     |
| Searching for material and bibliography        | 40.28<br>(15.23) | 40.62<br>(14.51) | -0.32  | .744 | .000     |
| Studying and personal work                     | 57.05<br>(12.51) | 56.79<br>(11.50) | 0.31   | .756 | .000     |
| Attending tutorials                            | 25.68<br>(11.82) | 26.97<br>(12.87) | -1.49  | .135 | .003     |
| Other activities (seminars. conferences. etc.) | 28.72<br>(14.46) | 29.42<br>(14.29) | -0.68  | .497 | .001     |
| <b>Total workload</b>                          | 43.37<br>(9.20)  | 44.58<br>(8.96)  | -1.89  | .048 | .005     |

Source: Own elaboration.

TABLE 2. Mean (M), standard deviation (SD) and results of the comparison of means between both qualifications in workload scores by NASA-TLX dimension.

|                                             |             | Licentiate       | Bachelor's       |                |          |          |
|---------------------------------------------|-------------|------------------|------------------|----------------|----------|----------|
|                                             |             | M (DT)           | M (DT)           | <i>t</i> (843) | <i>p</i> | $\eta^2$ |
| Attending practical classes                 | Effort      | 67.08<br>(26.26) | 67.43<br>(25.24) | -0.30          | .764     | .000     |
|                                             | Mental D.   | 59.89<br>(22.60) | 63.67<br>(20.43) | -2.55          | .011     | .007     |
|                                             | Physical D. | 43.05<br>(26.41) | 45.55<br>(27.48) | -1.38          | .165     | .002     |
|                                             | Temporal D. | 57.70<br>(27.10) | 60.34<br>(26.62) | -1.40          | .161     | .002     |
|                                             | Performance | 29.71<br>(21.01) | 28.82<br>(18.73) | 0.52           | .597     | .000     |
|                                             | Frustration | 29.87<br>(25.53) | 32.90<br>(25.95) | -1.67          | .094     | .003     |
| Conducting group work outside the classroom | Effort      | 63.80<br>(25.16) | 71.61<br>(21.48) | -4.68          | .000     | .026     |
|                                             | Mental D.   | 63.01<br>(23.43) | 71.59<br>(20.86) | -5.52          | .000     | .034     |
|                                             | Physical D. | 44.38<br>(26.36) | 49.42<br>(28.96) | -2.59          | .010     | .008     |
|                                             | Temporal D. | 60.92<br>(25.59) | 66.71<br>(23.58) | -3.20          | .001     | .013     |
|                                             | Performance | 31.46<br>(20.71) | 29.64<br>(19.92) | 1.26           | .206     | .002     |
|                                             | Frustration | 34.56<br>(27.72) | 41.63<br>(26.85) | -3.68          | .000     | .016     |
| Total workload                              | Effort      | 52.36<br>(14.69) | 56.27<br>(16.14) | -3.57          | .000     | .016     |
|                                             | Mental D.   | 51.27<br>(14.71) | 58.61<br>(16.28) | -6.48          | .000     | .047     |
|                                             | Physical D. | 36.04<br>(19.02) | 39.19<br>(19.96) | -2.40          | .016     | .006     |
|                                             | Temporal D. | 50.23<br>(15.92) | 53.49<br>(15.78) | -2.89          | .004     | .010     |
|                                             | Performance | 42.58<br>(14.80) | 40.97<br>(14.30) | 1.57           | .116     | .003     |
|                                             | Frustration | 27.76<br>(16.86) | 31.44<br>(17.35) | -3.13          | .002     | .011     |

Source: Own elaboration.

## 4. Discussion

Given the lack of research that has examined student perceptions of the academic demands resulting from adapting degrees to the EHEA, this study aimed to evaluate workload levels in two samples of psychology students (from bachelor's and licentiate degree programmes) and analyse whether the changes introduced by adapting to the EHEA have caused any significant change in student's perceived workload.

Using the NASA-TLX scale not only made it possible to discover the workload perceived by the students, but also to go into more depth in the understanding which activities generate the highest workload levels.

The results of this study indicate that there are differences in the total workload perceived by each group, with higher scores obtained from the bachelor's group (adapted to the EHEA) than the licentiate group (old system). Taking specific tasks into account, statistically significant differences were found for the «attending practical classes» and «conducting group work outside the classroom» activities.

Analysing each of them in greater detail, we find that for the «attending practical classes» task there are statistically significant differences in the mental demand dimension and so this activity requires a greater cognitive effort from the bachelor's group than from the licentiate group. The «conducting group work outside the classroom» activity is perceived

as being far more demanding than the previous one, with significant differences found in all dimensions apart from performance. This means that bachelor's students have to make greater efforts to achieve similar results, which as well as making greater demands also causes feelings of frustration.

These results allow us to draw two important conclusions from the adjustment to the EHEA, conclusions that require reflection and open up perspectives for future research. The first result is proof that the students perceive a greater workload in the new psychology degree since the implementation of the bachelor's programme; the second one shows that the activity that creates the greatest load in all dimensions is «conducting group work outside the classroom».

With regards to the first question, the results found coincide with those obtained by other authors regarding an increase in perceived workload in bachelor's students compared with those on the licentiate degree (Roca-Cuberes, 2013; Rodríguez-Izquierdo, 2014). To explain this result, various pieces of research state that the workload in bachelor's qualifications is no higher than the corresponding workload according to number of credits and that the increase in workload perceived by the students could be because the new methodologies require a continuous temporal distribution throughout the term (Julián et al., 2010). Other authors state that the lack of a relationship between effort and performance is not

explained by a greater workload, but instead by the lack of appropriate study techniques, limited use made of learning resources such as personal tutoring, and the need for greater effort from students (Ortíz et al., 2012). This increase in perceived workload could be because the EHEA establishes an autonomous teaching and learning system that requires organisation and planning strategies that are unfamiliar to students and for which they are unprepared.

Future research should evaluate the current perception of workload and perform longitudinal studies to discover whether the new bachelor's degrees are resulting in the acquisition of more proactive learning and a reduction in perceived workload over academic years. Their results would make it possible to discover what the process of adaptation to the EHEA has been like in order to propose interventions in study strategies and skills, applying knowledge from pedagogy with the aim of facilitating and improving the learning process.

As for the second consideration, namely that «conducting group work outside the classroom» is the activity that produces the greatest perceived load, this would indicate the difficulty students have in adapting to a new system of learning that involves developing interpersonal and planning and organisational competences. In addition, this is identified as a stressful activity that requires time and where the greater effort does not correspond with the expected reward.

The EHEA identifies team work as one of the principal transversal competences. Several studies (Alonso-Martín, 2010; Arce, Fariña, Novo, & Seijo, 2012; París, Torrelles, & Mas, 2016) have evaluated the acquisition and development of this competence in university students. The results of this research show that students do not regard this competence as a resource that helps them with their learning, but they do perceive it as a stressful factor that, on the whole, students are not acquiring. As Fidalgo-Blanco, Leris, Sein-Echaluce, and Garcia-Peñalvo (2013) observe, in the academic setting, teamwork is usually applied using what they call a «black box» model. In other words, it is not the teamwork competence of individuals that is assessed, but instead just the quality of the work once it is completed. Consequently, students are left to develop group-work skills through mere exposure, without giving them any resources or guidance, erroneously assuming that the students start university courses having already acquired this skill in non-university education.

The results found in this study make apparent the need to develop training programmes for students and for teachers to develop and evaluate this transversal competence, as it is precisely one of the most important of those identified in the professional profile of psychology graduates (ANECA, 2005).

With regards to the limitations of the study, it should be noted that it is an incidental sample from a single university, and a larger sample from several

Spanish universities would have allowed for more generalisable results to be obtained.

Finally, among the main practical implications of the results obtained, it is worth noting that this is a pioneering study in the evaluation of workload levels in the move towards the bachelor's degree in psychology in the EHEA. In agreement with the literature consulted, it is confirmed that this adaptation entailed an increase in perceived student workload levels and that the group work activity is perceived as especially demanding and frustrating. These results make it possible to open up new lines of research concerning the differences detected and propose future studies, considering perceived workload as an indicator of quality and of evaluation of adjustment to the EHEA.

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# Book reviews

**Naval, C., & Arbués, E. (Eds.).**

Hacer la Universidad en el espacio social  
*[Constructing the university in the social space]* (Emanuele Balduzzi).

**Mínguez, R., & Romero, E. (Coords.).**

La educación ciudadana en un mundo en transformación: miradas y propuestas  
*[Citizenship education in a changing world: perspectives and proposals]*  
(Marina Pedreño Plana).

**Bellamy, F.-X.**

Los desheredados: por qué es urgente transmitir la cultura  
*[The disinherited: why transmitting culture is urgent]*  
(Esteban López-Escobar).

**Pallarés, M., Chiva, O., López Martín, R., & Cabero, I.**

La escuela que llega. Tendencias y nuevos enfoques metodológicos  
*[The school of the future: Trends and new methodological focuses]*  
(Juan Carlos San Pedro Velado).



## Book reviews

**Naval, C. & Arbués, E. (2018) (Eds.).**

*Hacer la Universidad en el espacio social*  
[Constructing the university in the social space].  
Pamplona: EUNSA. 208 pp.

The book analysed here, which contains contributions by various university teachers working in Spain, sets out to provide an in-depth analysis of the significant educational, ethical, and social value the service-learning methodology can provide. The pedagogical stimuli presented in the text are undoubtedly of great interest and value from this perspective, precisely because they underline how this methodology makes it possible to promote an educational pathway that considers command of the competences that must be developed in each academic context, and which are now also widely shared at an international level. Service-learning also offers an opportunity to develop competences that can improve the social aptitudes and civic skills required for the balanced, harmonious growth of people who are sensitive to and participate in the demands of the social environment they inhabit by doing specific community and solidarity activities,

human qualities that are also decisive in a future professional setting.

The work reviewed here has eight chapters on this topic. The first three chapters present its rationale. The following chapters present the results of empirical research projects, which show the advantages of this methodology from an educational perspective.

Chapter one, by Miguel A. Santos Rego, Mar Lorenzo Moledo, and Ígor Mella Núñez from the Universidad de Santiago de Compostela, analyses in detail whether it is advisable to institutionalise this methodology in the university setting. Among the arguments set out, the authors are able to highlight that it is important to avoid «reductionist positions» (p. 26) when making this decision, as the «temptation to create bureaucracy, beyond what is strictly necessary» would be deeply counterproductive. In the next chapter, Juan Luis Fuentes and Ernesto López Gómez, from the Universidad Complutense de Madrid and the Universidad Nacional de Educación a Distancia

respectively, study the relationships and interconnections between service-learning and character education methodologies in their respective reciprocal positive influences. In particular, the authors note that «service-learning offers us a piece that fits well into the puzzle of character education» (p. 69), especially reinforcing moral and intellectual virtues. In the third chapter, Pilar Aramburuzabala, from the Universidad Autónoma de Madrid, rightly considers that «to analyse the effects of this methodology on service-learning, it is first necessary to ask what learning is» (p. 79), and then proceeds to set out all of the positive outcomes this methodology can have if it is appropriately understood and mastered, without losing sight of the pedagogical focus, which is also presented in the conclusion (p. 94).

The other five chapters are written by teachers from the Universidad de Navarra. In them, they set out the results of various pieces of empirical research on the utility and impact of this methodology in learning and growth. The first of these chapters, which is the book's fourth, is by Natalia Vera, Concepción Naval, and Elena Arbués. In it they underline how teaching staff's work and style can «contribute to the development of a pedagogical model intended to optimise students' learning» (pp. 100-101), especially through the service-learning methodology. The questionnaires distributed online to 760 teachers (of which 365 were returned with reliable data) show, among other aspects, «the high level of interest in university social responsibili-

ty by the teachers surveyed» (p. 111). In the next chapter, Sara Ibarrola-García and Ana Costa investigate the extent to which this methodology has a positive effect on student education (using a sample of 225 students from various faculties at the University of Navarra). This provides an encouraging perspective, as the students who participate report very positive opinions of service-learning, especially regarding «the opportunity this activity has given them to acquire professional skills and put into practice social and civic attitudes» (p. 131). After this, a chapter by Ana Costa and Álvaro Bañón, using the Economics and Business Studies Faculty of the Universidad de Navarra as an example, analyses how it is possible for students to implement service-learning activities in their undergraduate dissertations, especially in view of developing the «acquisition of professional, personal, and civic competences» (p. 161). Finally, Sara Ibarrola-García and Sara Carrica-Ochoa write the last two chapters. The first of them aims to investigate the impact of service-learning in an «experience of linguistic support for immigrant children with problems learning Spanish» (p. 167) carried out in the Language learning and attention to linguistic diversity module. Finally, the closing chapter covers a project for service-learning which was used in the Foundations and strategies for socio-educational action I module.

In conclusion, it would be impossible to summarise the richness of the questions and reflections expounded in this work. However, the depth of the reflections in the first set of chapters and the practical

and empirical confirmation laid out in the following ones make this a work of great interest, which anyone working in the different educational settings will undoubtedly find stimulating and inspiring.

Emanuele Balduzzi ■

**Mínguez, R. & Romero, E. (Coords.) (2018).**

*La educación ciudadana en un mundo en transformación: miradas y propuestas [Citizenship education in a changing world: perspectives and proposals].*

Barcelona: Octaedro. 159 pp.

While there is an implicit consensus about citizenship education as an integral part of the teaching process, issues such as the objective it is intended to meet or the way in which it should be approached seem to be less clear. At the same time, there is widespread dissatisfaction with traditional institutions that appear not to provide effective policies for tackling social problems that affect harmonious coexistence in society. In this context, a socio-educational change in citizenship education for new generations is necessary, starting by making educational agents aware of its importance. This is the central concern of this book. To tackle an undertaking of this magnitude, Ramón Mínguez and Eduardo Romero have surrounded themselves with colleagues of recognised standing who present for consideration different perspectives and questions.

In the first chapter, José Antonio Zamora reflects on the institutional crisis, starting from Martha Nussbaum's

position that education should not pursue «profitability and growth» (p. 19.). This chapter argues for educating citizens in the critical faculties needed for mutual comprehension in a democratic and diverse society. Next, the authors question the concepts of citizen and bourgeois in modernity, as well as the economic and political spheres that operate around them, supposedly in the background. The forced combination in the bourgeois-citizen, competition-solidarity dichotomy that characterises modern societies eventually permeates the educational sphere. Attempts to deal with this fracture have led to an absence of reflection on the motives that underpin it and on the perpetuation of a dual educational endeavour that ends up legitimising its own contradiction. Moreover, the author puts the phenomenon described above in the context of the third Industrial Revolution, which is characterised by the colonisation of information and communication technologies. Education ends up being absorbed by a mere interest in qualifications, and limited to the market's demands for human capital. Consequently, the instrumentalisation of educational purposes is subordinated to pragmatic shifts in changing settings where individuals are reduced to the category of merchandise.

The second chapter is by Miguel García-Baró who starts from the two most basic concepts in educational activity to consider the complex set of factors that intervene in human learning as a process without an end. Accordingly, he suggests that everyone has two teachers: the *I*, which does not have lessons but is already

endowed with capacities, and external reality, which inculcates lessons in us without asking permission. Concentrating first on teaching, he argues that it is not teachers' duty to teach the essential questions of life but that this task is instead the role of reality itself, and the teacher's role is to ensure that this is the case. As for the aspect corresponding to reality, García-Baró notes that, from an early age, children pursue «good» and existence itself encourages them to differentiate «between what is pleasant and what is good» (p. 58). In addition, he argues that learning can be conceived in five different ways (technical, scientific, artistic, prudential, and wisdom) that can be understood in a similar way to the Aristotelian virtues. He argues that the task of articulating them all correctly within the current pedagogical approach is neither insignificant nor easy. Nonetheless, neglecting one or more of the previously identified aspects of education makes it excessively utilitarian or, worse, dehumanises it.

In the third chapter, Alberto Gárate Rivera emphasises how overwhelmed and impotent teachers who work in precarious settings can end up feeling. The vagaries of the educational system and the lack of clarity in teaching targets only make teachers feel disorientated. He indicates that school thus becomes «a development factor that offers unequal opportunities» (p. 74). In view of this situation, he bases his proposal on the pedagogy of otherness in fragile contexts as a theoretical discourse which develops from acceptance as recognition of the other in her specific situation, testimony as consistency of the

teacher's life experience and the sense of waiting as creation of expectations for the future. The conditions required for all of this to be plausible relate to considering the uncertain and provisional nature of the educational act, trust, being anchored in the present, and doing away with fear. Regarding how these claims are investigated, the author presents research carried out in the CETYS University in Mexico, especially mentioning the attributes of the teachers who doggedly face all storms. He believes that narrative research and recounting the experiences of teachers can be valuable teacher-training tools.

In the fourth chapter, José Antonio Ibáñez-Martín reflects on two topics that are not without controversy: the concepts of homeland and citizenship in the current European context. Based on the idea that we have enjoyed the period of greatest prosperity since the creation of the European Economic Community, the author suggests this might have reached its zenith, asking the question «is Europe going through a mid-life crisis?» (p. 96). Despite the challenges that must be overcome to build a desirable future, Ibáñez-Martín eloquently argues for the concept of homeland in relation to Spain and Europe, claiming that it is not unreasonable if outlined in particular terms. Regarding Europe as one's homeland means calling into question the axiological and regulatory foundations on which it is based, as well as its viability and the how to find a point of agreement to which shared moral judgements refer. With regards to a shared life project, the author sets out a

series of recommendations around which basic priority actions can be organised. Ultimately, «seeing Europe as a homeland» (p. 116) involves educating for co-operation, breadth of outlooks, a critical sense, privileging the collective good over the individual, and implementing the Charter of Fundamental Rights of the European Union.

In the fifth chapter, Wiel Veugelers insists on moral values and education for citizens, identifying six curriculum levels, ranging from the articulated ideal to the student's actual learning. Reflecting on all of them is very necessary, as is reflection on the individual perspectives from which «moral values, objectives, and educational practices for citizenship» are understood (p. 124). In an attempt to go further in clarifying these matters, he presents the results of some of his studies in which three different types of educational objective were found (discipline, autonomy, and social commitment). Their interaction, in turn, reveals three types of concept of citizenship (adaptive, individualised, and critical-democratic) and, by extension, three ways of conceiving education for citizenship practices, which are more or less explicitly expressed depending on the geographical setting to which we refer. In the case of Europe, Veugelers emphasises shared values such as: democracy, especially with regards to participation, democratic politics, and a democratic society; and tolerance, regarding «personal relationships, tolerance towards other social or cultural groups, and an inclusive society» (p. 132). Finally, the author sets out various conclusions and policy and curricu-

lum recommendations, emphasising the relevance of an educational strategy to the present day.

María Rosa Buxarrais Estrada starts the sixth chapter by noting how we are impassively watching a crisis globalisation has caused in various areas of day-to-day life at the *macro* and *micro* levels. We are facing a worrying reality given the rapid transformations that have happened in «social, environmental, and human life» (p. 142). The author sets out how the technological revolution simultaneously presents new opportunities and complex ethical questions that require an educational approach relating to the values that guide our society. On this matter, Buxarrais shows the expediency of rescuing the Trilla's classification of values (1998), given its specific usefulness for considering values as educational content. In turn, she argues for redirecting ethical and civic education by adopting an ethics of care focus given «its commitment to relationships, love, and democratic citizenship» (p. 150). The many virtues of this proposal fit in very well with the current needs for citizenship education, and so she endorses the concept of «caring citizenship». Applying this concept to pedagogical practice requires spaces and times where students must give and receive care, where they reinforce the values of responsibility and social commitment, and where educational agents are the first to profess the art of looking and caring.

In conclusion, this book makes an interesting contribution to the examination and understanding of the pressing chal-

lenges currently facing citizenship education. It is also an indispensable tool for formulating pedagogical actions in this subject because it illuminates paths before certain matters that, even though they may go unnoticed in everyday practice, are of vital importance for the society we are building.

Marina Pedreño Plana ■

### Bellamy, F.-X. (2018).

*Los desheredados: por qué es urgente transmitir la cultura* [The disinherited: why transmitting culture is urgent].

Madrid: Encuentro. 171 pp.

This essay by a young French teacher and politician covers a French problem and alludes to some negative results from the PISA report for France, but it goes beyond this country. It is worth reading because it provides a warning and stimulus, and because of how well written and articulated it is, even if some nuances could be added to it.

When reviewing this work, I will include some reflections inspired by reading it. My perspective is, essentially, communicative. Harold Lasswell, a well-known author in our field, wrote an essay in 1948 on the structure and functions of communication in society. For him, the basic functions of communication were surveillance of the environment, correlation of the components of society or response to novelty, and transmission of cultural heritage. This last idea, in the academic setting, is represented on the campus of the Universidad Complutense de Madrid by the group sculpture

*Los portadores de la antorcha* (The torch bearers), by Anna Hyatt Huntington, in which a youth, leaning from the back of the horse he is riding takes a torch from the hands of a worn-out old man who is lying face-down on the ground. With these references, I suggest that transmitting culture is a plausible and obvious idea, with everything this could entail for openness and conditioning.

In 2014 François-Xavier Bellamy published, in Editions Plon of Paris, the book *Les deshérités ou l'urgence de transmettre*. The text now published in Spanish corresponds to the 2015 French edition, which includes an epilogue regarding that year's terrorist attacks in Paris and other places in France, and which with their violence —largely the product of a cultural void (an abyssal metaphysical void, he says, adopting the idea of Emmanuel Todd)— confirmed the gloomy presentiment the author expresses in the book. Such a presentiment does not entail backing down, nor is it a gloomy complaint; on the contrary, the author pushes for sensible action to try to overcome what I would call a drift towards cultural Alzheimer's. Bellamy, born in 1985, teaches literature and philosophy at the École Blomet in Paris, he is a *professeur agrégé*, and he has been one of the deputy mayors of Versailles since the 2008 elections. The book's title is intended to contrast with that of the work published in 1964 —half a century earlier— by Pierre Bourdieu and Jean-Claude Passeron, *Les héritiers: les étudiants et la culture*, but it is more than just a response to that work.

Bellamy suggests that the abandonment of transmission of culture in France is a conscious step. He recalls the moment when a general inspector who was welcoming a group of teachers, including him, told them: «You have nothing to pass on». Teachers are asked to educate children by freeing them from the previous culture. Therefore, as Bellamy notes, this is deliberate and even explicit behaviour. «Children should set off on their own in search of their knowledge, their moral decisions, and their destiny» (p. 20).

In the first part of the essay, Bellamy specifically mentions three authors whose ideas have contributed to the rejection of transmission of culture in his country: Descartes, Rousseau, and Bourdieu. This crisis «is not the result of a random accident, but rather of a very deep critique, the ancestry of which stretches back for several centuries» (p. 25). Descartes suggested «dispensing with all previously held opinions». Rousseau believed that culture perverted the human being, separating it from nature, «the only source of wisdom, virtue, and happiness». And Bourdieu denounced the guilty privilege of «the inheritors» whose social and family environment prepares them to be the elite that will wield power. «Knowledge» is seen as anti-egalitarian because it favours the self-reproduction of elites.

Consequently, deconstructing culture is proposed. Even language, described as «fascist» by Barthes in 1977, becomes the object of suspicion, «because fascism does not prevent speech, it compels speech».

The French language itself is then regarded as suspect, and is seen as elitist and discriminatory.

Fifty years after Bourdieu's denunciation, France faces the pitiful situation of «the disinherited», which Bellamy presents: «We wanted to denounce legacies; we have made disinherited people» (p. 21). This rejection of cultural transmission results in a world that deprives generations of the inheritance that makes it possible to have a true identity and roots, turning human beings into undifferentiated and indifferent individuals, the perfect agents and product of the consumer society. It is not possible to read these reflections without recalling the *mass-man* described by Ortega y Gasset in his famous essay *The revolt of the masses*; even though in the drift of the French school, as Bellamy presents it, the erosion of any reference, the deliberate planning of the loss of identity is more obvious.

«In *Emile* (by Rousseau)», Bellamy writes, «one finds the founding charter of contemporary education, which shapes, down to its details, our shared vision of pedagogy» (p. 64): «I teach him to be ignorant more than to know,» Rousseau said about his student. *Emile*, separated from his parents, respected as though he were the teacher, and protected from books, becomes the educational model that has been predominant. And, Bellamy notes, «today the millions of *Emiles* who fill our classes are, according to the PISA report, among the most anxious, least disciplined, and most often absent in the world.»

From respect for difference, there has been a move towards generalising indifference, to insensitivity when distinguishing the differences and nuances that —to a great extent— are something obvious. And this, in my view, is one of the contradictions of the pedagogical disorientation revealed in this essay, as it is a manifestation of a cultural situation with two poles, which seeks a contrived equality while pursuing refinement in details in many fields. Therefore, Bellamy's reference to oenology seems very relevant to me.

Let us take the specific case of a particular universe: oenology; wine is most certainly culture in the simplest sense of the word because it is, in first place, agriculture. To the uninitiated, all wines seem much the same. They can be divided into red, white and rosé, and they are more or less pleasant, but beyond these basic categories, the differences between them are imperceptible. To find them, it is necessary to be initiated in a body of knowledge, to enter a culture, develop experience, receive the necessary details so that the unique effects of each harvest, the always specific echo of a region, of a stock, of the hours of sun, of the aging, and so on can eventually appear to the palate (p. 133).

The idea of depriving human beings of their national and family heritage, forgetting who they are and why, and inviting them to create themselves and take shape in accordance with their own tastes, desires, and appetites reminds me of a comparison I have often used with my students: the difference between an orchard, park, or wood where the trees and plants

have roots binding them to the soil from which they draw nourishment and enabling them to bear fruit despite their apparent lack of liberty, and the desert where those balls of tumbleweed roll, rootless and bearing no fruit.

Bellamy insists that without culture, people do not know their own humanity and this again reminds Ortega and, in particular, his well-known observation that while the tiger cannot stop being a tiger, it cannot de-tiger itself, humans live with the constant risk of dehumanisation.

The author of the essay does not believe that there will be a clash of cultures, but rather of lacks of culture. And for his country he does not call for a universal, abstract humanist culture, but rather a particular culture: French culture. And he urges people to react, «if we still have time». Hope —arduous— which is open to the future, including expectations, should not be an excuse for giving in to amnesia, nor should it soothe forgetting. Therefore, this essay, even if it focusses on contemporary France, can be taken as a warning for those navigating the global world we inhabit.

Bellamy underlines the error of linking liberty to indifference, and suggests a process of surmounting, which requires an authority to «help distinguish truth from falsehood, the better from the less good, what is worth seeking from what deserves to be abandoned» (p. 142). The deconstruction of authority that preceded us, with the aim of having «all options open before us without distinction» —on

the lines of more choice means more freedom— so we are supposedly protected from any influence, does not mean liberty; the same lack of distinction would prevent us from desiring anything. As Bellamy says, «the retreat of culture will leave behind a shapeless and monotonous world, in which neither roughness nor uniqueness will be seen». And perceiving differences requires both culture and authority (p. 142).

I want to end the presentation of this essay, even though this may seem like a paradox, by mentioning what Bellamy describes in his opening pages. He recounts what happened on 12 March 2011 at the opera in Rome, when Ricardo Muti — breaking with his usual habit— decided to agree to an encore of *Va, pensiero*, the Chorus of the Hebrew Slaves, after receiving enthusiastic and lengthy applause. Muti, who was still recovering from surgery, returned to the auditorium: «I agree, but...» he started:

As an Italian who has travelled around much of the world, I am ashamed of what is happening in my country. This is why I agree to your request for an encore of *Va, pensiero*. Not just for the patriotic joy I feel, but because this evening, while the chorus was singing ‘Oh, my country, so beautiful and lost!’, I thought that, if we continue in this way, we will destroy the culture on which the history of Italy was built. And in that case, our country will truly be beautiful and lost —and us with it.

Recalling the gratitude Albert Camus showed in his book *The first man* towards the teacher who accompanied him during his school years in Algiers, a teacher who

fed in his pupils «a hunger even more essential for the child than the adult; the hunger for discovery» (pp. 145-146), Bellamy ended the original text in the 2014 edition with «my infinite thanks to the parents, teachers, and educators of yesterday, today, and of tomorrow, involved in this magnificent and difficult mission of transmitting the culture of which they are the legitimate heirs to children» (p. 161).

Esteban López-Escobar ■

**Pallarés, M., Chiva, O., López Martín, R. & Cabero, I. (2018).**

*La escuela que llega. Tendencias y nuevos enfoques metodológicos [The school of the future: Trends and new methodological focuses].*

Barcelona: Octaedro. 116 pp.

Thinking about the school of the future is inevitably connected to the conceptualisation and critical analysis of the school and the current context in which it exists.

Many of the ideas collected in this work relate to the forced transformation of the school, resulting from a social context in crisis. It goes without saying that Spain is currently passing through a period of change with unknown outcomes, which relates to the end of what could be regarded as its political adolescence and the abrupt acquisition of certain levels of democratic maturity. This period of reassessment could be a strict consequence of the chronological course of historical development, but it could also be the case that the turbulent global social, economic, and political context offers a situation

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that is useful for encouraging people to take civic responsibilities in all of these spheres. The large hegemonic platforms for thinking have, with their arguments, occupied these spaces which, in other countries, were marked by a variety of approaches emanating from civil society. Contrasting with the period of dictatorship, we are now witnessing to the dawning of proposals that are independent and autonomous from the official story and which are gradually starting to occupy these spaces. In the field of education, in this way, there are many initiatives for change and transformation that are trying to turn education in Spain on its head from a global or local perspective.

In this situation, *La escuela que llega*, the title chosen for this book by Marc Pallarés Piquer, Oscar Chiva Bartoll, Ramón López Martín, and Ismael Cabero Fayos, provides an analysis that is entirely necessary for unlocking these emerging foundations, which will undoubtedly decide the future changes in the educational system in general and the school as an institution in particular. A review of the value of the text's analysis is needed because too often in the face of similar challenges, problems have been presented in a restrictively brief way, and *ad hoc* solutions for each of the parts discerned have been established or suggested in an interested or disinterested way. The result of this exercise of adding or confronting questions and partial solutions has often resulted in constructs that completely lack harmony or continuity which those of us in the classroom have had to bear, with disenchantment or even resistance.

This work's approach establishes, throughout its development, a search for a common thread to act as a pattern in the construction of a systemic logic when attributing meaning to each of the actions that, from different areas of responsibility, can and should be implemented as part of the challenge of updating the path, habits, and customs of our current school system.

This exercise of analysis starts in the first chapter by proposing an interwoven fabric of basic topics in a hypothetical *conversation with the future*. Based around on the urgent need to build a responsible body of citizens and the demand for a collective effort to improve coexistence, other significant needs in the area of education are clarified and expressed successively, such as the need to establish responsibility for maintaining the welfare state, the commitment to educational excellence and quality, the challenge presented by an increasingly digital society, and the urgent need to adopt a new paradigm for lifelong education and improvement. All of these are aspects that, projected from the present day, will shape the immediate future of the school that is coming.

Based on these assumptions, the text establishes various questions in light of which there are undoubtedly multiple positions and proposals for action: Will the educational institution exclusively have to exercise a monopoly on learning and building knowledge? With what other areas of experience should it be connected? Can technology or its implicit paradigm of effectiveness replace the old educational demands and their fundamental objec-

tives? Can the systemic or technological narrative crush the individual and gloss over the necessary process of exploration of each of the figures involved? Will we be able to ensure that a culture of risk, flexibility, and innovation permeates the current static school culture and provides its structure? Can current theoretical-practical formats, which are disconnected from reality, be replaced with others that deepen real cross-cutting active learning? Will we be able to convince the inhabitants of an institution that is resistant to change of the personal and professional advantages involved in following the path of experimentation and innovation? Will we be able to prioritise the construction of coexistence above an easy commitment to simple knowledge acquisition? These are questions our teaching institutions must find answers for in the immediate future.

Raising these questions and possible answers to them drives and connects the reading of the successive chapters of the book, where we can appreciate the authors' ongoing effort to bring the recurring academic commonplaces towards the analysis proposed in the outline at the start of the work. In this harmonious and rounded development, it is easy to identify as an activist in the proposal for change and for responding to the challenges pre-

sented but, at the same time, the great responsibilities and commitments to accept are outlined ever more clearly as are the complex and dynamic territory in which education moves, and the need to raise all of these questions as connected challenges without the option of a partial or specific response and which require effort and dedication.

In its implicit conclusion, the ending inevitably addresses teacher training and the total maladjustment of the current focus to the problems and challenges to be addressed. Many more answers than questions are apparent when reading this section, which complements the rest of the book, and the truth is probably, in the view of the authors, that most of the challenges we face depend on rethinking adequately the lifelong training that every teacher should receive and lead. The claim that the safe havens where teaching life currently tends to take refuge, and on whose treacherous coasts we often run aground, must inevitably give way to more ambitious and lengthy routes is, in my opinion, a symbolic summary of this work as a whole. A task in which autonomy, flexibility, team work, and professional honesty are proposed as the best guarantees.

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