Abstract

Here we present the results of a study analysing the contents addressed by the activities included in textbooks for the subject of “environmental studies”. In the interest of delving deeper into methodologies and techniques that an inclusive school can promote, and after an exhaustive national (Spanish) and international bibliographical review, we have found evidence of the importance of cooperative learning among students as a strategy for facilitating the acquisition of inclusive values. Moreover, the subject of environmental studies expressly aims to address the acquisition of knowledge regarding our community’s cultural, linguistic and historical values.

Our findings question that these aims are actually achieved. In addition, we present a description of the competencies, aims, contents and activities included in several school textbooks.

Keywords: cooperative learning, textbooks, inclusive education, teaching-learning strategies
Introduction

The construction of human knowledge is mostly the fruit of social interaction. Therefore, it seems evident that community work should have a strong presence in the design and development of teaching-learning proposals. If we review the different pedagogical currents, most introduce methodologies to promote teamwork, i.e. cooperation among students. However, it is true that the aims and contributions attributed to this kind of methodology are very different. In this sense, group work in some proposals is limited to residual activities, while in others group work plays a significant part in the entire process.

The benefits of this type of work have been discussed since antiquity. For example, Quintilian in the 1st century and Comenius in 17th century described the positive effects for all students of working together. In the 18th century in England, Lancaster and Bell used a cooperative learning perspective with their students. This idea was exported to the USA and was widely present by the 19th century. It was Francis Parker together with the cooperative movement at the beginning of the 20th century who initiated its expansion throughout the world. Celestin Freinet introduced cooperative learning as a fundamental pillar of his pedagogical project, using a wide variety of cooperative techniques.

Within the inclusive schools movement, teaching-learning planning strategies are based on participative methodologies, opting for cooperative over collaborative practice (Ainscow & Booth 2000, Parrilla 2009, Pujolás Maset 2009, 2012). For example, an analysis of the indicators identifying inclusive school principles provided by Ainscow and Booth shows that many relate to cooperative learning or cooperative teaching.

Cooperative learning has become the object of analysis, reflection and research both in the scientific sphere and in the specific reality of the classroom.

In the case of Spain, education legislation over the last thirty years has made special mention of the need to promote this kind of methodology in the classroom. Something similar occurs in the majority of the world's education systems.

The use of specific methodologies is closely related to the educational resources available in classrooms. A review of the literature regarding the materials and resources commonly used by teachers in their classrooms reveals that textbooks are the main resource in primary and secondary schools in Galicia and in Spain. Moreover, although studies are not yet available, it is
known that publisher projects based on index cards with aims very similar to textbooks are becoming increasingly present in schools (Rodríguez Rodríguez 2009).

Therefore, we considered it to be very important to analyse the textbooks used by a group of students during the six courses of primary school in the subject of environmental studies. This subject integrates natural and social media aims. In this paper, we present results from our research. To start with, we review the importance of cooperative learning as part of inclusive educational practices at schools. We justify this type of work as a way of bringing attention to diversity, which is one of the objectives of inclusive schools. Inclusive schools see diversity as something positive, and it is necessary to use methodologies and resources that get the most out of every educational experience for each student. In this case, cooperative learning can be a good methodology for learning conceptual curricular contents, but also for learning social abilities and values that may be difficult to acquire in other types of school activities. The subject of environmental studies provides an interesting opportunity to work with cooperative strategies, given that students interact for a high number of class hours throughout the school year and contents are related to values involving the students' immediate community and other communities.

Literature Review

Attention to diversity measures

The Spanish educational legislation establishes, a priori, that attention to diversity is one of the basic pillars of the current education system. Students typically absent from the regular education system are recognised as having the right to actively take part in ordinary classrooms. This “acceptance” implicitly entails the need for curriculum and methodological renewal aiming to “focus on educational activities designed to respond to a diversity of ability, pace and learning styles,” as established by Decree 130/2007 of 28 June, (11669). In short, attention to diversity implies respecting and recognising the fact that difference and diversity are a basic and enriching element of human interaction, both inside and outside the classroom.

What do we mean by inclusive education?

The question of what is meant by inclusive schools does not have a univocal answer. Inclusive education, which is directly related to social inclusion, is an irrefutable human right. However, attaining it requires taking into account
diverse variables, ranging from individual to collective considerations. It is a long and sometimes difficult path that requires an educational proposal for each classroom and social context.

In principle, we agree with Devalle de Rendo and Vega (2006) that an inclusive school must be "integrating, inclusive, and comprehensive". It should be a space in which to develop individual and social attitudes that bring about significant changes in people, and should be sustained by pedagogy characterised by personal and collective respect.

If we take as a reference the principles of inclusive schools defined by Ainscow and Booth (2000:59), the educational practices in school classrooms reflect inclusive school culture and policies. The aims of classroom activities should encourage participation by all students and should take into account the knowledge and experience gained by students outside of school.

How will students with different personal characteristics, with and without disabilities, with one culture or another... learn to cooperate and respect differences, indeed, to live in an inclusive society and in integrating communities, if they have been educated in separate schools and classrooms? As espoused by UNESCO (1995), ordinary schools with an inclusive orientation, with child-centred pedagogy based on cooperation – for both teachers when it comes to teaching, and students when it comes to learning – are the most effective means of achieving a comprehensive education for all.

**Teaching-learning strategies: cooperative learning**

The methodology or methodologies utilised are essential elements that define and condition community life in the classroom, which is made up of students, professionals and families. To start with, we do not consider there to be a single adequate methodology or universal strategy to foster teaching-learning (Narodowski 2008). The best methodology and strategy will be the one that most adequately fosters the greatest individual and collective success of all the students involved. Thus, the proposal should be conditioned by the contextual features, the content to be worked on, and so forth. We should add that "an essential aspect of inclusive education is the creation of a sense of community, which is achieved through cooperative teaching and learning" (Huguet Comelles 2006:58).

We consider collaborative work to be an appropriate methodology for addressing attention to diversity. This has been demonstrated by numerous
studies analysing the relevance of cooperative learning and students with special educational needs (Ballar, Gottlieb, Corman & Kaufman 1977, Rynders, Johnson, Johnson & Schmidt 1980, Acton & Zarbatany 1988, Díaz-Aguado, Royo & Baraja 1994, Shevlin & O’Moore 2002, Piercy, Wilton & Townsend 2002, Almazán 2003), and other research refers to the contribution for all students (Ainscow 2001, 2012, Flórez García, León Aguado Díaz & Alcedo Rodríguez 2009, Parrilla 2009, Zabalza 2012, Espinosa Rabanal 2012, Duk & Murillo 2012). Furthermore, research has also shown that it can contribute to the general student body. Nevertheless, it should not be the only methodology used in a classroom.

One of the main contributions of cooperative learning lies in that success is achieved if all the team members learn from each other, take into account all of their capabilities, and proceed together toward a shared purpose (Ferreiro Gravié & Calderón Espino 2006:31).

Collaborative work and learning involves certain values regarding students’ social development such as solidarity, mutual assistance, and generosity. Under the pretext of problem solving, affective ties are woven which can help to develop positive social attitudes and inclusive values that, “...are better learned by participating in activities with other people, thanks to the intellectual stimulus that is provided and to the added confidence of having help available” (Pujolàs Maset 2012:92).

Clearly, cooperative learning is not limited to the acquisition of axiological content (attitudes, values, norms) Cooperative work is also an organised and planned strategy for acquiring conceptual and procedural contents. According to Velázquez Callado, cooperative learning involves the interaction of students with different levels of competence, and goes beyond addressing students' social and communication skills. As Echeita (2008:11) argues, inclusion "is not only a sense of belonging or emotional and relational well-being which can be reached from the periphery of educational action. It is also a concern for quality learning that places demands on the capacities of each student.”

For Johnson and Johnson (1985), the main features and contributions of cooperative work are the following: individual commitment, personal responsibility and solidarity to achieving the group objectives; the frequent use of interpersonal and small group skills, regular and frequent assessment of group performance; and leadership and responsibility shared by each and every member of the group. Different types of cooperative work exist such as: mutual cooperation and cooperation as help, tutoring among equals, support networks
among classmates, research groups, “Peer Tutoring”, Jigsaw, STAD “Student Team-Achievement Divisions”, TGT “Teams-Games-Tournaments”, TAI “Team Assisted Individualisation”, Jigsaw II, etc.

Barkley, Cross and Howell (2007) classify cooperative strategies according to five dimensions to be strengthened: dialogue, reciprocal teaching among peers, problem solving, graphical organisation, and writing.

**The subject of environmental studies**

The aims and content priorities in the subject of environment studies specifically focus on the acquisition of cultural, linguistic and historical values pertaining to the region of Galicia. It is a compulsory subject throughout primary education with teaching hours comparable to those in mathematics and Galician and Spanish language. It also extends into secondary education, although it is organised into different subjects and takes on other designations.

We would like to point out the following subject goals that are related to our line of research and which directly refer to aspects of human interaction:

a) Behaviour in accordance with habits of health and personal care based on knowledge of the human body, and an attitude of acceptance and respect for individual differences (age, gender, ethnicity, physical features, personality).

b) Knowledge of characteristics, organisation and interaction of relevant aspects of the natural, social and cultural environment, while advancing in the command of increasingly complex spatial settings.

c) Promoting a positive sense of belonging to reference social groups.

d) Recognising, valuing and appreciating the existence of diverse social and cultural identities with unique characteristics (customs, language, interests, celebrations, etc…), becoming aware of belonging to one of them and respecting the rights of others as expressed in universal declarations and legislative documents.

e) Actively participating in teamwork by planning and carrying out group tasks, discussing and defending one’s own opinions and comparing the opinions of others while maintaining behaviour that shows responsibility, a constructive attitude, commitment, and solidarity as well as respect for the agreed rules and the basic principles of democracy.
f) Critically identifying, analysing and evaluating the short- and long-term impact of human intervention on the environment with an individual and collective commitment to acting in the defence, preservation and restoration of the natural environment and cultural heritage.

**Didactic resources and transmission of values**

The various studies conducted in the Galician context highlight the role of textbooks in our classrooms at different stages of education and in different knowledge areas (Rodríguez Rodríguez 2009, Vicente Álvarez 2011). A wide range of research in recent years has demonstrated the role that didactic resources play when it comes to transmitting values and textbooks are one of the most thoroughly analysed resources. In addition to their curricular contents, the resources themselves and aspects such as how they are used, their role in the educational process, the selection and organisation of their contents, as well as the language and images used, constitute elements that have meaning in themselves and contribute to the personal and collective development of students (Hodkinson 2007).

**Study Description**

**Aims**

The aim of the study was to analyse the materials most widely used by students in primary education (PE) in the subject of environmental studies.

**Study Sample**

We randomly chose an IPS (integrated public school) located in rural Galicia. We found that the same textbook series is used from 1st grade of PE to the end of this stage in 6th grade as a guide and almost exclusive source of content and course objectives. The textbook in question is produced by one of the most widely used publishing houses in both Galician and Spanish schools, though the current study focused only on the Galician context. It is interesting to note that the publisher presents the same material in two different formats, but with the same objectives, content, methodology, and so on. One format is unified into a single document, while the other opts for presenting the various "didactic units" in separate notebooks.
We analysed the textbooks corresponding to the six grades that make up primary education in Spain. Three are presented in notebook format and the rest in the traditional textbook format.

Methodology

Content Analysis was the research methodology selected, as it is one of the most suitable lines of research for evaluating teaching materials, especially textbooks (Cantarero 2000, Castiello 2002, Parcerisa 1995, Zapico 2012). This research methodology is characterised by meticulous collection of data to facilitate knowledge, analysis and interpretation of the discourse contained in each text making it possible to carry out descriptive and inferential processes. A combination of quantitative and qualitative techniques allows for a critically-oriented collection of data that is objective and systematic (Berelson 1952). Thus, scientifically rigorous inferences are possible thanks to the objectivity and subjective richness (Bardin 1986). According to Navarro and Díaz (1994), inference is understood to mean the link between the textual reality of curricular materials and the extra-textual realities that underpin or somehow condition them.

In the process of gathering information, we used the Guide Tool by Professor Jaume Martínez Bonafé for the analysis and elaboration of curriculum materials (1995:221-45).

Research steps:

1. First we searched for an evaluation guide. The guide elaborated by Professor Bonafé was used for several reasons. It is a respected guide whose pertinence and reliability have been verified by research in our context and in others. Also, it is flexible and can be used for both qualitative and quantitative analysis. Moreover, I have a personal relationship with this guide: when working as a teacher in primary and secondary school, I used it to select class resources because it is comprehensive and meticulous and its items can be adapted to the context.

2. Next, we chose items according to the aims of the research project. We adapted the items to the needs of our study. To do so, we reviewed the variables used in other national and international research on textbooks and cooperative learning strategies in environmental studies (Hing, Lee, Ng, & Chew 1999, Yurdabakan 2011) Krippendorf (1997) suggests that it is necessary to define variables, so that researchers can explain their
own definitions. In this case, we defined the variables in line with the aims of our study: to determine whether cooperative strategies are used in activities, the type of techniques proposed, the aims introduced into school work by the technique, the kinds of relationships established between students and the work, the type of activities that use cooperative learning, the diversity level in cooperative learning strategies, the learning method promoted, and adaptability to context and students.

3. Next, we designed a registration table with the variables and the answer choices for each of them. The options were: never, sometimes, always and a space was provided for observations. This document was the evaluation guide.

4. When we finished the guide, we sent it to two specialists in textbook research for review. They came back with some suggestions, which all referred to grammatical and lexical aspects. We agreed with the suggestions and made the changes.

5. Finally, using the evaluation guide, we carried out individual analyses of each material and then a comparative analysis of all materials.

Results of the research

This paper presents the results regarding the teaching strategies, tasks and work organisation employed by students in the classroom. Table 1 summarises the main findings, which we will go on to explain.

Firstly, we must point out that during the primary education stage this group of students had a different teacher for the subject in each of the three cycles. The 6 grades of Primary Education are divided into three separate two-year cycles. The textbook was the basic reference throughout the school year, however, differences existed ranging from an almost exclusive reliance on the textbook to the complementary use of other materials, especially multimedia projections and reflection on one's own environment.

A priori, the textbooks analysed were "conceived" for individual work (100%) The first sign of this is undoubtedly linguistic. In Spanish and in Galician, verbal inflections and pronouns indicate grammatical person. There are six persons, whose pronouns are as follows, in Galician: eu, ti, el/ela, nós, vós, eles/as. (I,
you (singular), he/she, we, you (plural), they) All activities in the textbooks are formulated in second person singular.

### Table 1: Variables analysed in textbooks

<table>
<thead>
<tr>
<th>Variable</th>
<th>Never</th>
<th>Sometimes</th>
<th>Always</th>
<th>Specific section</th>
</tr>
</thead>
<tbody>
<tr>
<td>The material can be adapted to students' level, potential and interests.</td>
<td>50%</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material suggests homogeneous activities for the whole class.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>The type of activities proposed is diverse and has a varying degree of complexity.</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities and responses of a basically individual nature are predominant.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Activities that require student teamwork are predominant.</td>
<td>33%</td>
<td>67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material determines that activities can be selected and/or led by students.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>The material determines that activities should be selected and/or directed by the teacher or the material itself.</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The proposed activities are resolved primarily by consulting the material itself.</td>
<td>67%</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The proposals are carried out in the material; expiration.</td>
<td>67%</td>
<td>33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The format of the material conditions the individual use by each student.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>The proposed activities focus on rote learning processes or information retrieval.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>The proposed activities focus on procedural learning.</td>
<td>50%</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The proposed activities focus on learning processes involving an interaction between intellectual and manual activity.</td>
<td>16,6%</td>
<td>83,4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The proposed activities focus on learning processes involving an interaction between cognition, affectivity and social and cultural assessment.</td>
<td>33,3</td>
<td>67,3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material can be modified, extended or corrected during the application process.</td>
<td>16,6%</td>
<td>83,4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material requires students to look for sources of information apart from the material itself.</td>
<td>33,3</td>
<td>67,3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material suggests a high proportion of tasks that require teamwork.</td>
<td>33,3</td>
<td>67,3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The material suggests learning activities which reflect learning objectives involving attitudes, habits, norms and values of personal, community and social development.</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Delving deeper into the features of the textbook, we find that the activities it contains are quite closed (100%), since they ask for direct and specific answers.
that usually have only one correct response, leaving little room for student interests. The adaptation possibilities are minimal even at the earliest level. Nor are the activities formulated with varying levels of complexity. Students either succeed in resolving them or do not resolve them, but there is no room for intermediate levels of development. This lack of progression and complexity does not facilitate different levels of involvement by students, and it cannot be approached from a group perspective in which each member may bring different skills and expertise. Clearly, this variable is a major obstacle to carrying out a didactic proposal that addresses diversity inside a classroom, as it starts out as a homogenising formulation, which assumes that all students should learn the same thing at the same time.

In order to resolve activities, students have to individually resolve the questions posed by simply reviewing the information provided in the textbook. The fundamental aim is for every boy and girl to be able to respond by showing that they have retained the literal information in the unit. The vast majority of questions are interspersed throughout the unit and refer almost entirely to conceptual knowledge. At the end of the unit a series of activities are concentrated in various sections. These activities are used to check that the content presented throughout the unit has been acquired, and their format is very similar to the previous ones. Nevertheless, if the teacher wanted to do so, certain activities could give rise to teamwork proposals. In any case, they would be lacking in interest, since answers are closed and do not require other sources of information. It seems that virtually all activities merely aim to assess acquired knowledge.

In later stages, content becomes more procedural and even axiological. In the first cycle we found no activities for developing procedural or axiological skills, however, afterward, specific sections are included at the end of each unit to address this type of content.

Activities that a priori could be considered to address axiological and procedural contents offer abundant possibilities for teamwork or collective resolution. Even in these cases, however, they address the student as an individual and are not specifically formulated for teamwork. For example: "Think about the impact of automobile pollution in your city." In most cases, students are able to carry out activities without an explanation by the teacher. The materials are individual and in most cases can even be resolved in the textbook or accompanying notebook.

In the 1st and 2nd cycles the free textbook policy meant that the textbooks had to be returned to the school at the end of the academic year for use by other
students for four subsequent years, barring a justified change in textbook. However, teachers are the ones who can introduce changes, because the contents "do not expire" as they do not include any recent content or information.

Despite the rigidity of textbook activities, both in terms of content and methodology, teachers continue to have the option of adapting them, introducing new activities or reformulating them for teamwork.

Under these circumstances, the publisher's proposal clearly seems to assume that teamwork or cooperative learning is not necessary. There are only 25 cooperative activities in the five textbooks from 2nd to 6th grade of primary education. As stated previously, no such proposals were found in the 1st year textbook. Especially from 3rd year onwards, activities usually appear at the end of the unit, including some teamwork proposals, but the latter are relatively infrequent. In 3rd grade there is one activity per trimester and in 4th there are two. In the 3rd cycle, i.e. 5th and 6th grades, there is a specific section with the heading “teamwork”, but sometimes it is optional and is not at the end of every unit, usually only one or two units per trimester. This is not a question of activities, but of tasks to be carried out.

**What kind of cooperative work is proposed?**

As mentioned earlier, the books analysed present a notable lack of activities involving cooperative methodologies, but, as we have said, this does not mean that certain proposals cannot be adapted by teachers for use with these methodologies. We will now go on to analyse the most widely used activities involving cooperative methodologies.

As can be seen in Figure 1, virtually all forms of collaborative work are proposed at some point during primary education. We could say that the most widely used forms of cooperative work are also the most well-known and can be classified into three main categories: pair work, organisation into groups that take advantage of member potential to achieve joint results, and group activities oriented toward debate and discussion.
As suggested by a number of studies (Owens 1987, Echeita & Martín 1990, Echeita 2006, Ovejero 1990, Parrilla 2004, Baudrit 2000, Pujolàs Maset 2003, Durán & Vidal 2003, Huguet Comelles 2006, Molina Saorín 2009, Barkley, Cross & Howell 2007, Cernadas Ríos, Lorenzo Moledo & Santos Rego 2012), it is worth considering the suitability of the cooperative proposals in the textbook. The limited number and the fact that classroom experience is almost exclusively based on textbook use indicate that the supply is clearly insufficient. Furthermore, teaching guides do not include an identification, explanation or reflection on the characteristics of these activities, nor do they include a justification for their use as a way to address certain contents and objectives.

**Conclusion**

Based on the findings obtained from the analysis of textbooks used by students throughout primary school in the subject of environmental studies, we can see that the activities proposed for acquiring curriculum contents are mainly carried out individually and only rarely are cooperative methodologies proposed. This is a very serious shortcoming, since a variety of authors have shown that the latter methodologies are very important to an integral education, both for the
educational and social inclusion of all students (by respecting the circumstances, needs and potential of each person) and for a better acquisition of conceptual, procedural, and axiological content.

The high level of teacher dependence on the materials analysed and the scant use of alternative activity proposals suggest possible gaps in student training as a result of not being able to participate in cooperative educational experiences. Furthermore, avoiding these methodological proposals in daily practice goes against the very objectives of the subject itself, which, as mentioned above, are to address conceptual, procedural and axiological content from a clearly cooperative learning perspective. It is difficult to address cooperation through individualistic activities and practices. As we have said before, many voices are calling for the introduction of these methods into the classroom in order to promote an inclusive school.

We found that the cooperative techniques proposed in the textbook activities analysed could be suitable and pertinent if they were better contextualised. This seems to reveal the need for greater pedagogical reflection by teachers and publishers regarding types of educational techniques.

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