

Assessment for learning. Assessment of non-written sources understanding

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Abstract

Introduction. Despite the fact that the capacity of non-written sources (NWS) understanding is included in the Spanish secondary education curriculum, no research has addressed this competence. The main objective of this study is analysing how teachers consider NWS understanding that should be assessed to help decide which kind of support give to students.

Method. First, a model was developed of what NWS understanding implies. Then, 148 primary school teachers in Spain designed tasks to assess the understanding of two NWS. Following this, two judges assessed the proposed tasks according to the initially specified model. We analyzed the fit of teachers' assessment tasks to the proposed model by conducting percentage analyses and a hierarchical loglinear analysis.

Results. Teachers' assessments were shown to be unsystematic and were generally composed of tasks of a low level of complexity. Nearly all of them included ambiguous questions or questions which were irrelevant for testing understanding. The proposed tasks corresponded to different profiles, some of which fitted the proposed ideal model.

Conclusion. Some changes should be made in teacher education in order to foster students' competency for NWS understanding, especially to detect students' difficulties so that they can be presented with suitable feedback.

Keywords: Assessment for learning, non-written sources, understanding, teacher education.

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Resumen

Introducción. Pese a que la comprensión de documentos no escritos (DNE) forma parte del currículo oficial español de Educación Secundaria, no existe investigación respecto a cómo se enseña y evalúa. El principal objetivo de este estudio es analizar cómo los profesores consideran que debe evaluarse esta capacidad para ayudar a decidir qué apoyos dar al alumnado.

Método. Se desarrolló en primer lugar un modelo de lo que implica la competencia de comprensión de DNE. A continuación, 148 profesores de Educación Primaria en España diseñaron tareas de evaluación de dos DNE con el fin señalado. Posteriormente, dos jueces evaluaron las tareas propuestas de acuerdo al modelo inicialmente especificado, y se analizó el grado en que la evaluación de los profesores se ajusta al modelo ideal propuesto mediante análisis porcentuales por categorías y un análisis loglineal jerárquico.

Resultados. Las evaluaciones de los profesores fueron poco sistemáticas y se ciñeron a tareas de un nivel de complejidad generalmente muy bajo, incluyendo además casi siempre preguntas ambiguas e irrelevantes para identificar la comprensión. Las tareas propuestas por los profesores respondieron a perfiles diferentes, alguno de los cuales se ajusta al modelo ideal propuesto.

Conclusión. La formación del profesorado debería introducir cambios curriculares para favorecer la adquisición de la competencia de comprender DNE, especialmente para poder detectar las dificultades de los alumnos y ayudarles a superarlas.

Palabras Clave: Evaluación para el aprendizaje, documentos no escritos, comprensión, formación del profesorado.

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Introduction

Assessment is one of the most influencing factors in motivation to learn (Alonso-Tapia & Fernández, 2008; Alonso-Tapia & Pardo, 2006) and, through it, in learning (Alonso-Tapia, 1997, 2001; Segers, Dochy, & Cascallar, 2003; Mingorance Arnáiz & Calvo Bernardino, 2013). Because of that, teachers must know the most suitable assessment procedures, since assessment affects the students' interest and effort to learn.

Dochy (2005) distinguishes two perspectives about assessment: the *test culture*, whose main objective is to identify how much knowledge has been 'put' in the student's mind (*assessment 'of' learning*), and the *assessment culture*, which tries to provide both the teacher and the student with information in order to overcome the difficulties and self-regulate learning (*assessment 'for' learning*). The teacher, depending on the perspective, creates different assessment contexts which, in turn, can affect the student's effort. It is also important to know which understanding indicators are valid, since, even if we work from the assessment culture, some indicators can be considered valid when they are not and thus offer a low quality or inadequate feedback to the student.

In addition, teachers do not change their usual assessment methods except they become aware of the existing discrepancy between the information provided by the methods they use and the type of evidence that would actually inform about the competencies to be acquired and that allow to know how to help the students improve them (Pérez-Landazábal & Moreno, 1998). For this reason it is necessary to help teachers become aware of such a discrepancy, and to do this, it is essential to know the characteristics of the assessments they carry out.

Usually, the assessment methods they use are insufficient (Black & Wiliam, 1998, Segers et al., 2003). Pérez de Landazábal, Varela, and Alonso-Tapia (2012) found, in experimental sciences, that most teachers used tasks of a low level of complexity to assess the understanding of concepts, texts, tables and graphics, and scientific thinking. The same result has been found in social sciences for the understanding of historic causality (Alonso-Tapia, Asensio, López, Carriedo, & Rychecki, 2007) and tables and graphs (Alonso-Tapia & Hernansaiz-Garrido, 2013), where a tendency to ask questions about knowledge of facts was

also found. These ways of assessment do not allow to provide the students with the appropriate help to overcome difficulties in understanding.

This study analyzes if teachers know what the adequate tasks to assess non-written sources (NWS) understanding are in the context of Social Sciences. NWS are considered the non-verbal output made by a society with or without a communicative intention. They are usually used in different fields of Natural and Social Sciences in order to get information about the society which produced them, for instance in the study of the history of geology (Oldroyd, 1999) or the public healthcare systems in Africa (Waite, 1987). They include different kinds of objects, such as tools, utensils, weapons, buildings, sculptures, paintings, photographs, means of transport, outfits, footwear, etc. The understanding of the NWS involves extracting the information that lies hidden about the society which created them, similarly to what archaeologists and paleontologists do.

Given the informative value of the NWS, the Spanish syllabus of Social Sciences establishes the development of the competence of interpreting their meaning as a main goal. Text books and teachers, as a consequence, use them as illustrations when describing societies and explaining historic changes causes. However, as far as authors know, after revising the plentiful literature on competence assessment, even though there are some studies about how teachers actually assess in Social Sciences (Villa & Alonso-Tapia, 1996), no studies were found concerning NWS understanding or the assessment of such a matter between the ages of 12 and 18. This can be partially caused by the absence of a proper understanding of what this competence implies and, as a consequence, of a theoretical model. Therefore, this paper tries to present a theoretical model of NWS understanding which also works as an teaching and assessment guide this competence. Subsequently, this work also tries to ascertain if the assessment methods of teachers approach the presented model.

Assumptions from where Assessing the NWS Understanding

Definition of the problem

The information used to represent the structure and the social dynamism at a given time and the change in societies throughout history is found not only in written documents—texts, slabs, and graphics—, but also in different non-written sources: sculptures, paintings, engravings, civil, military, or religious buildings, diverse objects... However, what does the

capacity to analyze and interpret their meaning imply? What does the fact that the students understand or not the value of the information they contain depend on? And how to assess not only if the students understand their meaning, but also what is the cause of their understanding mistakes, in order to help them?

What are the implications of understanding the historic-social meaning of a NWS?

Knowing the dimensions delimiting the meaning of the object. Even though there are no studies about how beginners and experts understand NWS (probably in a different way, given the knowledge contrast between both groups), it is possible that the expert tends to locate spontaneously the document in its social-historical background in which this was created and to value it from their conceptual model on the mentioned background. For example, an expert may think that understanding the meaning of the decoration of the Sistine Chapel implies to know that it is a Renaissance painting with a religious and an educational function. As a consequence, when assessing what documentary value the students attribute to this historical document, the expert may ask about its function and artistic style which it belongs to.

This, however, would imply to focus on the main meaning already attributed to the document, analyzing it as a work of art. This analysis does not mean to analyze the document as a source, but as an illustrative example of a conceptual model already made about an artistic style. In addition, it does not assess if the student has developed a valid questions outline for the NWS analysis, an outline which the expert often follows in an almost unconscious way when finding an unknown document. Figure 1 presents a possible valid outline commented afterwards.

Non-Written Sources analysis Outline

- a) Description and function: What is it? What are its characteristics? What can it be for?
- b) Time-space location: Where and when does it appear?
- c) Basic implications:
 - 1. What sources of material resources are required for its elaboration?
 - 2. What does the greater or lesser accessibility to them in its location imply?
 - 3. What elaboration degree does the material which it is made of imply?
 - 4. What kind of technical knowledge are required for its elaboration?
 - 5. How many people would be required to the achievement and elaboration of them?
 - 6. What social and political organization degree and type would be required for its elaboration?
 - 7. What kind of economic resources are required for its elaboration?
 - 8. Are any special conditions required for these economic resources to exist?
 - 9. How much time is required to produce the object in question? And to disseminate it?
 - 10. What values, beliefs, goals, sensitivity, and personality seem to reflect the existence, nature, and (eventually) the content of the source or analyzed object?
 - 11. How much impact could have caused the object category it belongs to in the social change?
 - 12. What is its situation and current status due to?

Figure 1. Outline for the NWS analysis.

Source description: characteristics, nature, and function. Identifying the possible characteristics, nature, and function of the source is the first thing students must be able to do before extracting the information hidden (Trepát & Carbonell, 1995). However, to do this, it is necessary to know in advance the characteristics of the category of objects it belongs to. For instance, although a student can describe a threshing machine, without knowing its function, it is very difficult for him to be able to identify it as a farming instrument and extract the deriving implications later. Because of that, the first thing to assess is if they know what kind of object it is. Although in many cases this is not necessary because it is usually known objects, if they do not know, *it will be essential to help them discover its possible nature from the analysis of its characteristics* or, depending on the case, tell them directly what it is.

Time-space location. Objects take on a meaning according to the background and moment when they are created, developed, and used. The meaning of the object regarding its sociocultural background changes depending on this background; for example, the ruins of a

Christian chapel found in Rome and other ones in India do not have the same meaning. In addition, it is essential to *ask oneself* where and when the object appears and *answer oneself* these questions. The first one is part of the outline to assess a NWS, a procedural knowledge to be taught necessarily in an explicit way. The second one depends on the previous factual or conceptual knowledge about the object in question, which needs a different kind of help. As a consequence, it will be necessary to assess either if the students ask the question to themselves (or if they take it into account in order to find the meaning of the object) or if they are capable to answer according to their previous knowledge.

Implications analysis. Once the object has been described, identified, and located (to the extent possible), it is time to extract information helping with the reconstruction of its background birth. *What questions should the student wonder to do that?* They should be able to wonder spontaneously the following questions and examine the implications deriving from them.

1. *What material resources are required for its production?* All objects are made out of some material. Let us take into account the Altamira paintings (pigments), the Parthenon (stone), or a coin (metal). *Why is it important to consider the materials?* Because they need to be available, they may need different degrees of transformation and elaboration in order to be used and may need more or less workforce to get, transform, and use them.

2. *What are the implications of a greater or a lesser materials accessibility?* Once the material has been identified, it is necessary to learn to wonder if it is easy to get. If it is not available near the object, it requires transportation, which must lead to think about two questions: where and how is it got (commerce, conquests...) and if its transportation requires any special means or technique. If it is not accessible, where was it brought from? Were there any commerce routes? How was it paid for? Was it got thanks to the conquest of some place? Where could it be?

3. *What is the elaboration degree of the material which it is made of?* Different materials require a greater or lesser elaboration degree. An arrowhead or the *David* of Michelangelo would need to be cut and carved; a sword metal requires knowledge about extracting, smelting, and alloying. *Why is it important for the student to consider the material elaboration?*

tion degree and type? Elaboration implies to know how to make something, which has to do with the development degree of the technical knowledge, and depending on the type of elaboration, it can be required more or less specialized workforce and detached from other jobs. Thus, this question must lead to the posing of the other questions.

4. *What kind of technical knowledge implies the elaboration of the object?* Building the Parthenon or a canal with locks requires, as well as the knowledge about how to treat the materials, knowledge about complexity degrees on design, assembly, strengths and structures, which also has to do with the technical knowledge development and may need a different quantity of specialized workforce.

5. *How many people are required to elaborate the analyzed object?* The elaboration of an object implies its conception, getting the materials, transform them, and assembly them. *Why is it important for the student to wonder about the number of people required to make it?* If the elaboration requires a lot of workers, it may imply a more or less complex organization of them, and if workers released from getting food through other ways are needed, there must be plenty of food for their alimentation.

6. *What social and political organization degree (and type) seems to be necessary for the object elaboration?* One only person could carve with a stone a, arrowhead, but the construction of a cathedral requires a high level of work organization and people with knowledge and authority to lead others. The greater number of people working in something, the greater is the probability of conflicts coming from the possible unfair situations derived from work distribution, differences between work conditions, and wages. As a consequence, if the object suggests a complex social organization, it implies that some kind of rule and an effective power has been necessary to solve all of those conflicts and restore order.

7. *What economic resources are required to make the analyzed object?* The economic resources necessary to make an arrowhead, a threshing machine, or an aqueduct are different. As well as the type of materials, and the complexity and magnitude of the object, other factors affect its final cost: the number of workers, their wages or whatever they receive in exchange, the kind of technology (which can increase or decrease the necessary workers), the 'taxes' the authorities may collect... if the necessary resources are many, where do they come from?

8. *Is it necessary any kind of special condition (political, economic, or organizational) for the necessary economic resources to be possible?* It is necessary the existence of a power or organization able to collect the resources excess (coming from the natural wealth of the area or not) and assign them to the production of the object in question. But, *what kind of condition (power or organization) can make the object elaboration finance possible?* It may be coercive power, as in the case of the Egyptian pyramids, or it may be a voluntary economic investment from individuals through a more or less developed organization, as it happened in England and the building of canals during the Industrial Revolution.

9. *How much time is needed for the elaboration of the object in question? And for its dissemination?* The nature of the object (materials and their availability, its complexity) and of its demographic, technical, economic, political, and financial conditions necessary for its production suggest a quantity of time necessary for making the object. In the same way, time is also required for the made object to have visible consequences, even though this impact may vary depending on different factors.

10. *What values, beliefs, goals, sensitivity, and personality reflect the existence, nature, and (eventually) the content of the object?* Certain conditions (natural, demographic, technical...) are necessary for the objects to be made, but it also exists an intention which is due to values, beliefs, goals, sensitivity, and personality of those who decide to make the object or support the idea. For instance, the investment in funerary monuments like the pyramids suggests the importance given to life after death by the builders. A mutual interaction between the conditions and the values underlying the social-historical change exists and this emphasizes how important is for the student to wonder about their role.

11. *What is the impact the analyzed object (or the group of the existing ones) may have caused in life and social change?* As well as teaching the students to ask themselves about the factors explaining the existence of the analyzed object, it is important to teach them to wonder about the *probable consequences of its existence*. This can explain subsequent changes, like its possible impact in certain aspects of life or in demographic, technical, social, military, political, and cultural changes. In addition, the objects (tools, weapons, temples,

paintings...) can be grouped by categories with a similar impact in social life, which allows to infer the effects the creation of an analogous object would cause today.

So far, the minimum outline a student should be able to think about when facing any NWS has been commented. This does not imply that they must always ask about the whole of it, even though they do need to be able to. But *is being able to do it really an indicator of competence?* Yes, indeed. Acquiring the ability to analyze and understand the social-historical meaning of a NWS means to acquire the ability to *pose questions* implying the ability to assess the document from different points of view.

Being able to deduce the meaning of the object regarding each and every analysis aspect. On the other hand, understanding the social-historical meaning of a NWS implies to be able to give hypothetical answers to the posed questions, which will depend on the previous knowledge on the people, their organization, culture, and change processes. However, the answers will indicate an understanding and applying knowledge capacity only when they must be applied to elements not seen previously. On the contrary, the answer could be merely the result of memorizing without understanding. For example, if a picture of the aqueduct of Segovia is presented, it could be easily recognizable and the students may speak about the Roman civil works just because they memorized it but, if the remains of another aqueduct unknown by them are shown, the fact that they are able to deduce the probable characteristics of the people who built it would actually mean an indicator of understanding.

Principles for the Assessment of the NWS Meaning Understanding

The described considerations suggest that the students must achieve several goals related to the NWS understanding, which requires to take all of them into account when facing assessment. This must include the following elements.

First criterion: Ask for the source description. Since it is necessary to identify the object in order to extract more information about its background, this question should be always posed, except it is a very familiar object.

Second criterion: Assessment of the student outline. The outline acquisition is a learning goal, so it is necessary to assess specifically if the outline has been internalized. To do

this, the student may be requested to indicate what aspects of the object would they analyze (not to analyze it) to get information about its background. To prevent the students from memorizing the questions without interiorizing the outline, this can be not presented in the course of the teaching but it can be used when facing a NWS, so that the student assimilates the method. It can be also required a complete and systematic analysis of the information the object gives about the society which created it and deducing from that the outline they are based on.

Third criterion: Assessment of the capacity to analyze the source document from various points of view different from the usual one. It is important for the students to be able to analyze the source not only from the most usual perspective (religious, artistic...), but also from others (demographic, economic, technical, political, cultural...). Because of that, it is important to ask them directly questions emerging their capacity to answer them. For example: *(A drawing of an unfamiliar Greek temple is shown) Describe what demographic (or economic, political, technical, etc.) conditions may have made possible a temple like this one. Justify your answer.*

Forth criterion: Assessment of the capacity to apply conceptual default models to the NWS analysis. The NWS can be also a base to assess the capacity to use the representation models of a social reality of a given moment or any of its aspects. For instance, if differences and similarities between Paleolithic and Neolithic period have been studied, a possible question would be: Which of them is related to a bone harpoon and why? In this case, however, the capacity to extract information from the source is not so heavily assessed, but the quality of knowledge which will be a base to assess the analyzed object.

Fifth criterion: Assessment of the capacity to locate the object in space and time. For example: *(A drawing of a landscape with primitive factories is shown) What place and time does this landscape belong to?* It is usual to ask the students about time-space location as a previous step to understand the informative value, but in this case the student is expected to remember something learnt, so factual knowledge is assessed. From the assessment method proposed, the process should be the opposite: getting the location as a consequence of the analysis. In order to assess the document understanding, it is important to ask in terms of probability and request the student to deduce it from the previous analysis.

Objectives and hypotheses

Since there are no previous studies on the topic, this paper tries to answer a question: *The way teachers assess the capacity to understand non-written documents respond to the theoretical model presented or it is due to other conception of the meaning of this competence?* Based on the previously discussed evidences, it is also expected that teachers tend to use low complexity tasks, mainly for factual knowledge.

Method

Participants

A total of 148 Primary teachers studying Psychopedagogy studies and with a minimum of three months' professional experience took part voluntarily in the study. They were chosen because they were getting ready to be Secondary School teachers and school counselors, the educational level where the NWS understanding must be learnt and assessed. 84.5% were women and the average age was between 23 and 26 years old.

Materials

The task shown in Figure 2 was presented to the teachers.

A series of non-written sources are listed below. Assuming they are presented to the students, what questions would it be necessary to ask them if we wanted to assess if they understand their informative value regarding the society which created them and, in such a case, what is it due to? Choose two objects to answer.

1. A stone arrowhead
2. An iron sword
3. The Parthenon
4. A coin
5. A horseshoe
6. A Greek trireme
7. A waterwheel
8. The Chichen Itza pyramid
9. An English canal with locks
10. The engraving at the right



Figure 2. Task presented to test the way of assessing NWS understanding.

Procedure

The task was presented to teachers and they were asked if they understood the instructions. Every question was asked and they were given enough time to complete it. The tasks designed by the teachers were encoded according to five defined categories regarding the model of NWS understanding proposed, to which two more were added in order to include the questions which did not fit anywhere else. Two experts in Secondary School History guaranteed the adequacy both of the categories proposed and of the designed classification criteria (shown in Table 1 with questions examples). This fact constitutes a content validity indicator of the test. The authors encoded the questions independently, with almost 100% agreement. When in disagreement, this was solved by joint analysis of the case.

Statistical Analysis

The percentage of teachers who posed questions belonging to any of the categories was calculated in order to check differences as different kinds of questions are asked and how they fit in the theoretical model proposed. A hierarchical loglinear analysis adapted to detect associations between category variables (Pardo & Ruiz, 2012), was carried out to test the possible existence of assessment ‘styles’ defined by the systematic usage of different category questions.

Results

Fit of the Teachers NWS Assessment Mode to the Theoretical Model

Table 1 shows the percentage of teachers who posed questions belonging to each category.

Table 1. Categories of questions classification to assess the NWS informative value understanding, examples of each category and percentage of teachers using them.

Questions categories	%
<i>C1. Request of source description. Encoding criteria: Request of the description of</i>	58.8%

the characteristics, nature identification, and the probable function. <i>Example:</i> What probable function do you think this object could have?	
<i>C2. Assessment of the student outline. Encoding criteria:</i> Asking what object aspects they would analyze to get information about the background. <i>Example:</i> What would you wonder about the object to get information about the background where it was created?	8.1%
<i>C3. Assessment of the capacity to analyze the documentary source from different and unusual points of view. Encoding criteria:</i> Requesting the formulation of the hypothesis. <i>Example:</i> What would the elaboration degree tell us about the technical knowledge of the background where it was created?	23.0%
<i>C4. Assessment of the capacity to identify the necessary information to prove hypothesis. Encoding criteria:</i> Asking about the information they need to search to prove the hypothesis. <i>Example:</i> What information would you need to get to check if your hypothesis is true?	2.7%
<i>C5. Assessment of the capacity to locate the object in space and time. Encoding criteria:</i> Requesting the deduction of the object time-space background. <i>Example:</i> According to the hypothesis you stated about the background where the object was created, when in History would you locate it approximately? Why?	7.4%
<i>C6. Ambiguous questions. Encoding criteria:</i> Asking in a very general way. <i>Example:</i> What does this object tell you?	29.1%
<i>C7. Factual knowledge. Not relevant assessment for the main purpose. Encoding criteria:</i> Posing questions not implying the deduction of information from the object. <i>Example:</i> How is this object made? Where is it located? What period does it belong to?	96.6%

As it can be observed, there are great differences in how teachers use each questions category (from 2.7% to 96.6%). Teachers often only include questions from the category of source description (58.8%). 23.0% request formulation of hypothesis in their assessment tasks, 8.1% tries to assess the student outline, 2.7% their capacity to identify information necessary to prove hypothesis, and 7.4% their capacity to deduce time-space location *according to the analysis carried out*. On the other hand, 29.1% of teachers include too ambiguous questions, and 96.6% pose factual knowledge questions.

Assessment of NWS Understanding Profiles

Table 2 presents the resulting model from the loglinear analysis made on the possible existence of links between the posing of different kinds of questions.

Table 2. *Model found in the hierarchical loglinear analysis.*

Step	Effects ¹	Chi-square	df	p
102	Generating class 1*5, 2*4, 2*5, 1*3*6, 1*3*7, 2*3*6, 3*4*6, 4*6*7	19.776	101	1.000

Note. ¹ The numbers in the Effects column refer to the categories numbered in Table 1.

The analysis yielded a model with an excellent fit (likelihood ratio: $\chi^2 = 19.776$, $p = 1.000$). The maximum difference between adjusted observed and marginal values was .208, below the convergence criterion (.250). Every shown parameter had non-null effects ($p < .05$) in the former step and, since it is a hierarchical model, they include all lower order effects (two-way interactions and main effects).

The effects found were interpreted with the standardized residuals of the contingency tables (Pardo & Ruiz, 2012), which indicate a link when they are above a standard deviation (higher than 1.96 or lower than -1.96). Tendencies found are described below, with the absolute value of the corresponding standardized residuals in brackets in order to facilitate the interpretation of its magnitude.

- a) Teachers requesting the description also tend to request the *deduction*—not remembering—of the time-space location. (C1/C5) (|2.2|).
- b) When the questions are about the object aspects to be analyzed to get background information and why, the tendency is to ask what information would be needed to prove the hypothesis (C2/C4) (|5.0|), in spite of not having been asked to formulate them.
- c) The assessment of the outline also tends to be associated to the assessment of the time-space location *deduction* (C2/C5) (|4.7|). This pattern and the previous ones have an interest in assessing the understanding and the reasoning skills.
- d) When the students are requested to formulate hypothesis, ambiguous questions tend to be posed. This association happens more often when the source description is not re-

quested (C1/C3/C6) (|3.4|). For example, not requesting the description (ambiguous background) and asking ‘What does this object tell you about the society which used it?’ (ambiguous question) and ‘What technical resources may have been necessary to make it?’ (request for formulation of hypotheses). This pattern exhibits the teachers’ confusion about the competence assessment.

- e) In cases where source description and formulation of hypothesis are requested, the tendency is not to ask about factual knowledge (C1/C3/C7) (|2.7|). When description but not hypothesis formulation is asked, it is usual to ask about factual knowledge, situation in which the teacher does not assess understanding, but remembering.
- f) Requesting formulation of hypothesis is normally associated with ambiguous questions, but only when the student outline is not assessed (C2/C3/C6) (|2.5|).
- g) When ambiguous questions are asked and the formulation of hypothesis is also requested, the tendency is to request the identification of the information necessary to prove them (C3/C4/C6) (|2.1|); this pattern reflects an interest to assess understanding.
- h) Finally, if identifying information necessary to prove hypothesis is requested, there is a strong tendency not to ask questions about factual knowledge, which happens more often when ambiguous questions are not asked (C4/C6/C7) (|8.3|).

Discussion

This study, firstly, tried to present an assessment of NWS understanding model and, secondly, to test if the way in which teachers assess this understanding is adapted to the mentioned model. Ideally, the teachers should have proposed questions for each category, avoiding ambiguous factual knowledge questions. Results brought to light some important facts discussed below.

In the first place, almost the total amount of teachers pose questions about factual knowledge, which can have a great value as indicators of other skills but which are not appropriate to assess NWS understanding: the student may miss a question in spite of understanding the informative value of the document or may answer correctly without having actually understood. This result tallies with the ones found in the study by Alonso Tapia and Hernansaiz Garrido (2013) and supports the mentioned expectation of a high use of questions about factual knowledge. In the second place, almost a third part of the teachers pose ambigu-

ous questions which make it difficult for the students to know what the teacher is looking for and thus prevent the adequate competence assessment and the identification of the students' difficulties.

In the third place, 40% of teachers do not request the source description (a necessary but not enough condition to understand it). In the fourth place, a low percentage of teachers ask questions from the medium and high complexity categories (C2, C3, C4 and C5), which is in line with other studies about assessment of competences (Alonso-Tapia et al., 2007; Alonso-Tapia & Hernansaiz-Garrido, 2013; Pérez de Landazábal et al., 2012). Finally, there are certain patterns formed by associations of ways of assessing and *not assessing*. These patterns diversity indicates the lack of systematicity in the teachers' assessments. However, some teachers do present patterns indicating that, in order to assess the studied competence, it is necessary to focus on understanding and reasoning, even though the used patterns are not complete.

The presented results indicate that most teachers do not assess properly this competence, since they use ambiguous or irrelevant questions and they do not include medium or high complexity tasks. These results are in line with others studies stating that used assessment methods are usually deficient (Black & Wiliam, 1998, Segers et al., 2003). In addition, this assessment method deficiency leads, again, to the impossibility to identify the students' difficulties and, therefore, the impossibility to provide appropriate help to such difficulties, impeding this way the assessment *for learning* (Dochy, 2005) and the development of a proper motivation to learn (Alonso-Tapia & Fernández, 2008; Alonso-Tapia & Pardo, 2006).

This study presents some strong points of a nature both theoretical and applied. Firstly, we presented a model of what the ability to understand NWS implies and of how to assess this competence with the goal of helping the students overcome possible difficulties. Secondly, it has brought to light the fact that the tasks used by teachers reflect the idea knowing facts is more important than knowing how to think in accordance with the proposed model. Thirdly, there is certain convergence between the obtained results and the ones found in relation with other competences, which contributes to the understanding of teachers' assumptions regarding assessment. Fourthly, the facts described in previous statements have an important implication of an applied nature, that is, the necessity to educate teachers on competence assessment

in general and on NWS understanding in particular. To be exact, it is necessary to make them aware of the existing discrepancy between the information provided by the methods they used and the kind of evidence which is actually informative (Pérez-Landazábal & Moreno, 1998), with the intention of encouraging them to modify their usual assessment methods.

In addition, this study has some *limitations*; among others, the sample, which is relatively small, is focused on Primary Education teachers (although studying to be Secondary Education school counselors), and mostly composed of women. This makes necessary to replicate the results in future research with bigger samples, more gender diversity, and in different school levels. Furthermore, the kind of design and the nature of the data impeded to answer important questions; for instance, to what extent would teachers take advantage of getting specific information about the way of teaching and assessing the non-written documents understanding. Future studies starting from this base would benefit from collecting different data (e.g. pre-post designs) and carrying out analyses different from the ones in this study.

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