



Municipality of Bologna
Educational Department
U.O. Laboratori per la didattica

Quaderni del Planetario: percorsi didattici

Universe for Dyslexia

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Presentato a Physics on Stage 3- 2003

N° 2

In cooperation with
Associazione Italiana Dislessia
Laboratorio di Documentazione e Formazione- Comune di Bologna

Introduction

The plan arise from the collaboration between the VIII didactic circle of Bologna and the Planetarium of Bologna as prosecution of a previous work about dyslexia in children of the first and second form, work which was carried out in the academic year 2000-2001 in the primary school Carducci. The need of continuing the same subjects in order to make the learnings more solid appeared In the academic year 2001-2002.

The dyslexia

"The evolutionary dyslexia is a trouble that manifests itself when the child begins to learn to read and to write. The problem is already present previously, but it doesn't appear as long as a certain type of ability is not required. It is a sectorial trouble of the reading which shows itself in a child with neither neurological nor cognitive troubles (the child concerned is by definition intelligent), as well as without important sensorial troubles (auditory and visual deficit) and primary relational troubles (troubles concerning the relationship field in the first place).

Dyslexia manifests itself despite the child having had normal school opportunities. The reading trouble is usually accompanied by a difficulty in writing and in reading and writing numbers and calculations."¹

In the Italian school, unlike in the European one (particularly in the English one), dyslexia is not considered as a handicap but as a trouble that is hardly recognized and that often provokes character problems in the children affected by it. In most of the cases the recognition of the problem in a brief time and a suitable logopedic treatment and/or special computer exercises can attenuate the trouble. The recognition of the problem often happens in the school circle, while the logopedic treatment is given in charge to special structures.

The preparation and the carrying out of a suitable "curriculum" and therefore of exercises opportunely studied can be, as in this case, part of the didactic program even if out of the school hours.

Some difficulties that can be found in the preparation of such a "curriculum" are:

- the lack of a suitable software in Italian language.
- when the software is present, it deals with repetitive material, often tiring and, above all, not entertaining especially if we keep in mind that in order to have a greater effectiveness it must be administered to children of the first and second form,
- finding a matter particularly entertaining for the children.

The target

The group of children that followed this work came from four third forms that, in the years before, were subjected to tests elaborated by professor Stella² in order to individualize specific cases of dyslexia. The children so-called "at risk" (about fifteen) met in the group on which the experimentation was developed.

The children worked in a computer classroom and everyone had a pc Pentium at his/her disposal. Sometimes the classroom turned into a scientific laboratory with the preparation of a work surface leant on easels around which the children worked.

¹ "Il mago delle formiche giganti" (The Magician of the giants Ants") pag.64 ed Libriliberi.

² Giacomo Stella is a Cognitive Psychology co-teacher in the University of Urbino.

The subject

The problem connected with this group of pupils was motivating them to repeat again exercises with known and therefore potentially "boring" modalities, and so the choice of dealing with scientific texts that children considered "exciting" was done. In this context the theme "The Life in the Universe", subject inserted in the P.O.F. (Plan of the Formative Offer) of the VIII Didactic Circle of Bologna, constituted an entertaining element also thanks to the presence in the circle of the Planetarium that coordinated the "under 13" initiative.

The exercises, already known by the children and therefore could be found boring, were applied to scientific texts with further linguistic difficulties due to the specificity of the language.

Consequently, the introduction of some words in the single work units followed a logic consequential order that induced the teachers to introduce scientific terms in the first lessons and then to face both their oral and written acquisition and consolidation in the following units.

The choice to dedicate the last lessons to the construction of the placards was dictated by a methodological necessity: it was important to make the terminology introduced applied in a new context, different from the original one, exactly with the purpose to indirectly verify its acquisition. Analogously, the preparation of the placards was meaningful for the scientific aspect as a moment of verification of the acquisitions and of general synthesis of the fundamental elements characteristic of the single work units. This verification revealed itself as an important moment since the students had to re-examine, to synthesize (and it wasn't a simple thing for them) and to elaborate again the learned concepts in order to be able to present them to the public.

The formalities

Last year the capital letters were primarily used, for the greater facility of decoding, introducing only at the end the "script" character; this year the common opinion was that it was possible to start immediately with the "script" character, always adopted thereon. Preferably, Arial character was adopted (where it was possible), of dimension 14.

The course lasted 30 hours, organized in 10 interventions (one a week) of 3 hours.

The duration of 3 hours was due to some organizational demands. The idea of preparing experiments required the foresight of a moment of laboratory that could not last less than an hour exactly for the characteristics of a scientific laboratory: the purpose we established was to make all the present students perform the experiments. To this hour, the necessary time for the execution of the exercises was added (around 30 minutes), the reading of the letters of "Alien", some answers that children gave and the putting on record; what is more, the execution of additional games. At the end of every meeting the teachers analysed the developed work, and planned the activity of the following lesson.

The innovations in this experimentation were:

1. the insertion of a strictly scientific language
2. the presence of two teachers during the lessons (which took place in the afternoon after school time) one with computer and dyslexia competences, the other with competences strictly connected up with the didactic of sciences, and particularly of Astronomy.
3. the insertion, inside these lessons, of simple experiments that, arousing the interest of the students, motivated them to face also repetitive exercises as well.

4. the introduction of a new "workbook" built on purpose with exercises consisting in joining the dots, crossword and anagrams.
5. the availability to modify the planned course in case of difficulties. For instance, after having spoken about atmosphere and its density the children asked how we would behave if the atmosphere had been similar to oil, for example.
After this question, following the methodology used on the site www.altrimondi.net a letter describing the features of his planet and inviting the children to perform some experiments was delivered every time by the "Guide of Altrimondi" (an imaginary Alien).
6. preparation of the material and participation at the exhibition "Life in the Universe" organized in Bologna.

The choice of the software

The choice of the software wasn't simple: in fact, there isn't any material in Italian language. We decided therefore to adopt again the software we used the last year: "Lectra" about which we are going to give a brief synthesis.

"Lectra is a shareware program of systematic practise of the reading that proposes a series of exercises with the aim to improve the reading effectiveness
<http://www.lectramini.com/italien.htm>

The exercises administered to the children can be elaborated beginning from a text prepared on purpose by the teacher".

On this text the children can perform a series of exercises that the program itself sum up in the following way³:

“**Close**, missing words that children have to remember and to rewrite.

Reconstitution of the text, where a lot of adjoining words are absent.

Basic words, words chosen by the teacher are cancelled and the child has to remember them and to rewrite them.

Lightning words, words that appear for a brief time and that the child has to read and to identify among the different ones proposed after.

Messy sentence, the elements of the sentence are proposed in disorder, the child has to rearrange them.

Sentence without spaces, the words are not separate from blank spaces, the child has to insert them in the correct place.

Memory, the well-known memory game with words and/or paintings.

Quiz, questions about the text proposed (text comprehension).”

The year before the program had already been used exactly for the characteristics that the exercises have:

1. they have a brief lasting (twenty minutes)
2. they can be repeated (possibly every day) for a long period that lasts days
3. they aren't boring.

This year we choose to keep on using it just because it is possible to insert a text prepared on purpose and that was essential since the vocabulary that we wanted to introduce was a scientific and therefore specific one.

This has allowed us to introduce texts selected and constructed on purpose in relation to the themes we had chosen. Additionally, the quizzes were prepared in order to verify the comprehension of the text.

³ We have indicated just the exercises proposed to the students, not all the ones contained in the program

Consequently, the texts were directly written on LECTRA and so subduced to the exercises that the program establishes.

The work units

The following work units were structured from a scientific point of view keeping in mind the children previous knowledge. In this experimentation children from a third form were involved who already had, in their normal school curriculum, dealt with the living beings theme, what is more the classes concerned participated at the experimentation "Life in the Universe" under 13 that was performed in the Planetarium.⁴

1. Living - not living, the living beings need air, light, heat, water.
2. Is there air?
3. How light pass through various substances (water, milk and distempers)
4. The light of a lamp: the temperatures at different distances.
5. Summary
6. Examination of the results of the experience of work unit 1.
7. Fall of a meteorite on sandy ground.
8. Explanation of the experience to a teacher: erosive action of the atmosphere.
- 9-10. Conclusion of the work and preparation of the placards for the exhibition.

In the exposure of the work units there are: the work in class sequence, the software material used, the materials necessary for the experiments, the process followed and therefore the scanning of the single activities; in the end, the reading used connected to the "risky words", that is to say the "problematic" terms both from a lexical and a scientific point of view. Soon afterwards the questionnaire is presented with possible forms, crosswords, games...

⁴ For further information about the carried out program see www.altrimondi.net Guide under 13