

# Creative Writing with Symbols

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## Abstract

CNOTINFOR and the Education Support Centre of Guarda have conducted an experimental project with a three-month-duration (from April to June 2005) in the use of Writing with Symbols software with children and teenagers with special educational needs. This project was developed by the educational support teachers of the students involved and by a specialized team from CNOTINFOR.

The role of CNOTINFOR's team in this project was to provide special and technical support in the use of this specific software in educational contexts, to elaborate an organised project with specific aims, tasks, deadlines and reports and to prepare and edit a final report to disseminate this initiative.

## Keywords

Writing with symbols; Literacy; Special educational needs; Micro theory; Communication; Language; Grounded analysis; Communication skills; Communication difficulties

## 1. Introduction

As a company with very strong research and development components, sometimes when the product reaches the market, it is difficult to know if the end-users are taking the most of it. How are they using it? Do they feel any kind of difficulties? Do they have any new ideas or activities? In what way is it helping or supporting their activities?

We believe that the users' opinion is extremely important and we want to help teachers, educators and parents in their daily work with their children and teenagers.

This is the beginning of this project. We have translated and adapted the English version of the software Writing with Symbols to European and Brazilian Portuguese and we have a large community using it. When attending workshops, events or in training, we listen to very interesting ideas and activities being implemented. We also hear the difficulties felt by educators when trying to use the software and not knowing how they can work with it in the classroom or in individual sessions.

## 2. Theoretical Basis

In the last decades, knowledge about language is being significantly developed, due to essays in areas such as Cognitive Sciences, Neurosciences and Linguistics. These essays have contributed to enlarge the acquaintance about specialised brain mechanisms that intervene in language, speaking and related problems. We can assume that there has been a convergence in the work of people arising from several academic backgrounds sharing a common goal: to understand the language in its essence.

What is language after all? Is it the way one speaks? Is it the way one communicates?

First, it is necessary to distinguish communication from language. Communication is to interact with somebody else, so it is something constant. We can communicate using a gesture, a look or a word. Communication is part of every animal species – the dance of the bees or the singing of the whales. Communication is universal. On the other hand, language is a specific way of communicating, a particular means of expression of human beings. We can allege that language is the most powerful communication instrument known, being the most important human means of expression. There is a narrow relationship between language and thought, knowing that in normal circumstances, thought renders concrete through language.

Do children with language difficulties see their communication with others compromised? Probably yes since language is the most used means of communication. In contrast, besides communication, language is also related to cognition, what can also explain learning difficulties in children.

Writing with Symbols software arises in this context, as a support to communication, and can be considered a language promoter.

In this way, we intend to carry out a scientific study about the use of this software in educational context. We aim to have some answers to problems identified by some institutions supporting children with special educational needs that use this software.

Based on reports and experiments made by teachers, educators and therapists using regularly Writing with Symbols software, we know that it influences communication abilities in children with communication and language difficulties. However, we intend to know *the how*. We aspire to research not only the results, but also the process leading to the results.

We will base our problem on some guiding questions:

- Is there any change occurring in the communication ability of children with Special Educational Needs using Writing with Symbols in educational context? How does that change arise?
- How does Writing with Symbols facilitate and/or promote communication skills in children with difficulties in language and/or communication?
- In what way does the educational context influence and/or interfere in the use of Writing with Symbols?
- How does the educational context intervene in the obtained results?

These are some of the questions that will guide our essay and that will certainly be reformulated taking into account the interpretation and systematic data conceptualisation.

To achieve the proposed goal, we believe it is adequate to use a qualitative data analyses methodology. Nonetheless we may also use a more quantitative methodology in some particular moments.

The study shall be made with a sample of 10 participants chosen by the teachers and considered relevant for the current phenomenon. The following instruments for data collecting will be used: sheet for students' diagnosis, grid for activities to be developed and grid for diary (to record of the observations). We will use also the activities produced and the

works done by the participants. Data decomposition will be prepared using *Grounded analysis* method. The results obtained will be resent to teachers in order to know if they can be applied in their specific circumstances.

There will be a permanent method to compare the theoretical structure of researchers with data feedback.

### **3. Aims of the Project**

We intend to achieve the following goals:

- To diagnose the needs and skills to be developed by the students;
- To define the activities to be developed, using Writing with Symbols software;
- To observe and report the observation of the developed activities;
- To organize and compile a report about the experiments, main conclusions and recommendations;
- To collect good pedagogical practices on the use of Writing with Symbols software.

#### **3.1. Software Description**

Writing with Symbols is an integrated text and symbols processor for children and adults with difficulties in the use of text. It contributes to the total autonomy of the user and eases the acquisition of basic reading and writing skills. It is an excellent auxiliary for expressing and communicating. It has several tools which aim is to facilitate literacy learning of children and adults and the educator's work in preparing activities.

It includes a text to speech engine of high definition that allows reading everything that is written.

This software is available in several languages and has been originally developed by an English company: Widgit Software. It has been translated and adapted to European and Brazilian Portuguese by Patrícia Correia and Secundino Correia, from Cnotinfor.

### **4. Project Working Plan**

This experimental project, with a three-month-duration, has the following working plan:

- Project presentation and kick-off;
- Diagnosis of the needs and skills to be developed (students' identification);
- Identification of the skills to be developed with Writing with Symbols software in the ambit of an alternative curriculum;
- Definition of the activities to be fulfilled and their adaptation to the software;
- Activities' experimentation and observation;
- Activities' readjustments (what has worked, what has not worked, improvements to be made);
- Final report: description of the activities, positive aspects, features to be improved, conclusions and recommendations.

#### **4.1. Diagnosis of the needs and skills to be developed**

To start doing the diagnosis of the needs and skills to be developed by the students chosen and also to break the ice at this initial stage, the strategy was a poster about each student's characteristics made by the teachers involved. Each of them has chosen three elements cut from magazines and words and/or expressions related to the children's characteristics.

We intended to have answers for issues such as number of hours per week spent with the children, integration (or not) in a classroom, parents' involvement, use of the computer, use of the software Writing with Symbols, children's potentialities and skills to be stimulated and exploited, activities and work already being developed and children's evolution since the beginning of the teacher's support. The instrument for data collecting was the sheet for students' diagnosis.

#### **4.2. Target Public**

After the diagnosis, we were able to better identify and understand the target public. There are 10 students working within this project.

##### **Student 1**

He has 8 years-old and has West Syndrome. It is characterized by epileptic spasms, delay in the psycho-motor development, lack of muscle strength, mental disability, severe learning difficulties, language difficulties, orientation problems, difficulties in communication and social interaction skills. The skill to be developed is the communication with others.

##### **Student 2**

He has 9 years-old and has severe learning difficulties, so the skills to be developed are reading and writing.

##### **Student 3**

He has 7 years-old and has deficits in attention, motor control and perception (DAMP Syndrome). It is characterized by development disorder, causing lack of attention and/or perception inability, difficulties in attention, concentration, perception and motor activity. The teacher intends to develop the skills of reading and writing.

##### **Student 4**

He has 17 years-old and an inferior intellectual development compared to the average expected to his chronological age. The skills to be developed are related to symbolic and functional reading and writing.

##### **Student 5**

He has 10 years-old, Atypical Syndrome and disorder in oral communication and phalanx rigidity. The skill to be developed is the association between signification and significant.

##### **Student 7**

He has 8 years-old and has hyperactivity, dyslexia, cognitive and attention deficit. The skills to be developed are reading and writing.

##### **Student 8**

He has 15 years-old and mental disability. The main skill to be developed is the communication with others.

**Student 9**

He has Cornelia de Lange Syndrome. It is characterized by typical facial dysmorphism, mental disability, growth setback and multiple malformations. It can have nourishing and nutritious complications. There are risks of deafness and vision and difficulties in language. The skills to be developed are reading and writing.

**Students 10**

He has 7 years-old and cerebral palsy in tetraparetic form. It is characterized by a brain damage caused by lack of oxygen in the brain cells. It does not imply mental disorder. The skill to be developed is an alternative communication method.

**Student 12**

He has mental disability. It is characterized by an intellectual functioning inferior to the average expected, large difficulties in writing, reading and calculus. The skill to be developed is the improvement of reading and writing.

**4.3. Activities to be developed****Student 1**

The theme of the activity to be developed with the child relates animals. The aims of this activity are to identify the animals with the use of symbols, to associate the specific sound to the correspondent animal, to repeat and say the names (words) of the animals. The teacher intends the children to develop skills such as acknowledgment of the presented animals, oral communication and autonomy in the use of the computer.

To fulfil this activity, the student needs the teacher's constant support and monitoring.

To develop this activity, the teacher will use interactive communication grids. Each grid has few cells, each one containing the colour symbol of an animal. Each symbol is combined with a sound, the sound of each animal.

By clicking in each cell, its content is placed in a blank document. When this happens, the child sees the symbol, hears the word (read by a text to speech engine) and hears the sound of the animal.

**Student 2**

The activity for this student concerns the Portuguese language and the learning of reading and writing. It will focus on food, especially child's favourite. The aims to be achieved are to identify food for the main meals of the day, to reveal his tastes and preferences, to recognise healthy and unhealthy food, to pronounce the words clearly, to read and write simple words. The child should develop skills related to acknowledgement of food, oral communication and reading and writing of simple words.

In what concerns the use of the computer, the child likes it very much and uses easily the keyboard and mouse. The idea of the teacher is to support the activity at the beginning but then let the child work alone, only with some supervision.

The activity must have an organised wordlist<sup>2</sup> with the words and symbols to be used. The interactive communication grids have, in each cell, the word and the equivalent food symbol. If needed, a sound can be associated to each food, as a way to identify each one more easily.

By clicking in each cell, its content is placed in a blank document. When this happens, the child sees the symbol and sees and hears the related word.

### **Student 3**

This student's teacher has chosen the story of "Little Red Riding Hood" as a theme. The aims proposed to this activity are to tell the story, to describe the images, to identify the story's characters, to identify sounds, to make questions and to develop the taste for reading and writing. It is teacher's intention that the child develops skills like autonomy, reading and writing, written and oral communication.

The student is able to use the keyboard with the help of the teacher and also alone.

Before this activity with Writing with Symbols, the story was told and discussed with the child. So when start working, the child already knows the story quite well.

This activity is based on two types of communication grids: paper grids and interactive grids. With the first type of grids, the child builds a sentence with blank spaces. He should fill those spaces with the contents of a cell. Each one has a character, an object or an action of the story. With the interactive communication grids, sounds can be added to enrich the contents of each cell. Thus the child's undertaking is to click in each cell, in the correct sequence order to tell the story. When clicking in each cell, the child sees the symbol or image, hears the word and the sound (if it has one attached). The child should try to describe the symbol or image chosen and place it in the proper sequence of the story. By hearing and seeing the word, he should be able to rewrite it.

### **Student 4**

As this student is not interested in school and does not understand its purpose, the teacher has chosen the theme related to daily life activities, specifically friends and leisure. The aims of this activity are to recognise the importance of written language as a way of becoming autonomous, to develop the taste for reading and writing and to read and write. The skills to be developed are related to autonomy and to words and sentences reading and writing.

The teenager likes computers very much and uses the keyboard to interact with it, with the teacher's support.

For this activity a wordlist with words related to his favourite activities and the student's friends' pictures should be created. This wordlist must contain all the words, symbols and images needed to the fulfilment of the proposed tasks.

The teacher has to create an environment with interactive communication grids about the favourite leisure activities of the student. With the help of the vocabulary, expressions and/or sentences contained in the cells of the grid, the student shall write a text concerning the subject "Friends and leisure".

### **Student 5**

The teacher has chosen living and non-living beings to the activity to be developed. The aims intended to be achieved are to make a distinction between living and non-living beings, to

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<sup>2</sup> A wordlist is like a database that links each word to a corresponding symbol, picture or image. Sounds can also be added to symbols, in a way to enrich their meaning.

categorise the living beings as for the type of food, reproduction and habitat, to make the connection between living beings and kind of food, living beings and type of reproduction and living beings and habitat. The skills to be widen concern reading and writing, acknowledgment and categorisation of living and non-living beings.

A wordlist of the words related to living and non-living beings, as well as other allied vocabulary, will be prepared. The teacher will build several communication grids that will be printed and used without the computer.

For example, there will be a grid whose cells will have symbols and text concerning living and non-living beings. The student should only paint the living beings. The other grids have the same layout. They will have some living beings (symbols and words) that need to be linked to the correct subject, such as the kind of food, the kind of reproduction and habitat.

### **Student 7**

This student loves animals, especially birds. He has a wide variety of birds at home. The teacher will use this specific interest to motivate and to lead the child to read and write. The teacher intends to develop skills such as reading and writing and written communication.

The student uses the computer.

The teacher will build a wordlist containing the pictures, names and sounds of the student's birds and other words and symbols needed to make sentences about this topic. As the child is able to identify the vowels and some consonants, he will use the symbol processor to write. The teacher will guide the student and help him find the letters in the keyboard.

At first, the child will have to write the names of the birds. As he finishes writing, he will see the word written, see the picture attached and hear the sound. He should try to repeat the word he has heard.

The second step will be making expressions and/or sentences using those words. There will be symbols illustrating the key words, to sustain the reading and understanding of the sentence.

### **Student 8**

The subject of the activity to be developed is classroom and school. The main goals to be achieved are to recognize and identify his classmates and to associate their names to their photographs. The skills to be increased are related to oral and written communication and social abilities.

The teacher will make a wordlist containing the names and pictures of each of the student's classmates. This wordlist will be used to fill the cells of an interactive communication grid. This grid will be very simple: it will have four cells (two lines and two columns). Each cell will have the picture and the name of the corresponding classmate. The letters will have a larger size than the pictures.

The student should be able to say the name of each classmate and link it to the correct photograph. Based on the information given by the student, the teacher will click the related cell. The student will be able to see the picture, the text and to hear the word. This might help him repeating the names and recognizing his classmates.

### **Student 9**

The subject matter to be discovered with this activity is means of transport. The aims to be understood are to know and distinguish different means of transport, to develop an active vocabulary, to identify small words through their symbols and to write small words and

sentences. The teacher would like the student to enlarge skills concerned to the overcome of new technologies, reading and writing and written communication.

A wordlist with words of means of transport will be made. All the symbols must be very colourful and have big size. The teacher will build interactive communication grids organised by means of transport: air, earth and water. The document where the text and symbols will be written must have light blue background and medium letter size.

The student is able to use and handle the computer. The teacher's role is related to support and stimulus.

### **Student 10**

The teacher has chosen the family as the subject for this student's activity. The aims to be achieved are to recognise and identify the members of his family and to associate each of them to a symbol. The child should be able to develop skills such as expressive and receptive communication and social abilities.

The teacher will build a wordlist containing the symbols and words related to the child's family members. Based on this wordlist, an interactive communication grid will be built. For this initial stage, there will be only one grid with six cells (two lines and three columns). Each cell will have the symbol and the name of a family member.

The child, with the help of the teacher, should identify the different family members, by making a gesture or movement. According to the student's answer, the teacher will click in the corresponding cell of the grid. At that time, the child will see the symbol chosen and the word associated and will hear the name.

### **Student 12**

The topic for this student's activity concerns shopping lists, especially the ones related to food. The goals to be achieved are to identify the names of the food, to motivate the student to functional reading and writing and to write small words and sentences. The skills to be enlarged involve reading and writing and social abilities.

The teacher will build a wordlist containing the words needed for the activity requiring symbols. This wordlist will be used in the symbol processor to help the student writing the shopping list.

The student is able to use the keyboard and mouse. The teacher's support will include orientation, coaching and words' spelling.

### **4.4. Diary**

At the end of each session with the student, the teacher is invited to make a diary about the activity's observation. This document is presented as a table / grid containing the following items: student and teacher's identification, date, aims of the session, duration, description of the activity, main implementation difficulties, positive aspects, negative aspects, features to be improved for the following sessions, student's evolution, activities adjustments and other comments or observations.

## **5. Conclusion**

Based on the diary reports prepared by the teachers about their observations and activities with their students, we intend to have a real feedback about the effect of this software in children's and teenagers' communication and language skills. We would also like to have a

sample of best practices in the use of this software and to wide this initiative to other institutions and schools.

Based on a constructivist paradigm, it is our intention to build a micro theory about the influence of Writing with Symbols software in the communication skills of children with communication and language disabilities. As such, this theory shall be analysed in contextual and local terms, assuming that the constructed knowledge will always be subjective and depending on reports, rules, values and traditions of researchers, teachers and students.

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