INFOASILO: OBSERVATION METHOD FOR EDUCATION IN THE WEB 2.0 ERA

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ABSTRACT
The paper is aimed to illustrate an application developed to support and facilitate educators in their work.

KEYWORDS: Education, Observation method, Qualitative data, Web 2.0, Socio-constructivist approach.

1. INTRODUCTION

Observation is the main qualitative method in the field of human and social sciences. It allows to collect information on the subject behaviours in his/her context, reporting them in an almost direct way and avoiding to reduce them to a number or an occurrence. Observing children is a fundamental activity in educational processes. In fact educators need to collect data on children in order to control that they are learning and developing, to offer them the right contexts and experiences to sustain and scaffold their growth. To be actually useful, observing children should be a systematic and well conducted activity in order to avoid dangerous misunderstandings. Anyway being an expert observer is not easy as well as to take notes of children behaviours and actions: educators, for example, need at the same time to observe children while managing the ongoing activities and the current relationships. Moreover observing is a time consuming activity, because it is mainly conducted with a paper and pencil technique.

For all these difficulties observation is not well accepted in educational contexts, even if educators are often convinced that it would be actually a necessary and useful good practice.

This is the reason why, as researchers committed in the area of teachers and educators training, we developed an online environment [1] that provides them with guidelines and some utilities to store and organize the observed data (Web-OB), then transforming it in an application for tablet.

2. WEB-OBSERVATION ONLINE SYSTEM

2.1. The Web Observation application

The Web Observation application (WEB-OB) was addressed to educators and teachers to offer a scaffolding to their daily observational activity and to facilitate the accomplishment of good practices in this field. The environment was structured into two parts: the first was named *building* and was thought to allow the users to carry out an almost complete and correct observation text; the second part provided some tools to connect the users in a *community*, especially communities of practice [2].

Web-Ob was structured as following:

- a tutorial package designed to acquire competences in the observation method and facilitate the transition from a naive approach to an expert one in the observation activity;
- a system to store information and retrieve them from the available database (automatically updated data on children, how many observations a specific user carried out and accomplished, how many children were observed, how many times a child was observed, how many times a child was observed with respect to a specific finality, the chronology of observations on a child, info on the contexts frequently chosen by the users to observe);
- a part with collaborative devices such as blogs, forums, social networks, wiki, to share information and discuss amongst educators and/or parents.

With regard to the observation texts, written in the box available for the description of the actions of the observed child, they can whenever be retrieved and modified. They can also be automatically processed in order to verify the absence/presence of naive observation text figures and/or expert observation text figures. In fact we know from our previous researches that a *good enough* observation text is generally characterized by:

- low percentage of qualifying adjectives referred to the protagonist of the actions;
- high percentage of nouns and verbs of action referring to objective details;
- presence of cognitive verbs [3, 4].

So that the written text could be automatically analysed from a morphological and/or grammatical point of view, providing quantitative data.

The second part of the environment was also important, as we considered the knowledge building process as a social one [5]. As a socio constructivist tool, Web-Ob offered the possibility to make use of collaborative devices such as blogs, web forums, social networks, wiki. There were an

internal blog and a forum but also links to other Web 2.0 applications such as social networking, wiki, social bookmarking.

This part was not a secondary one, it was not less important with respect to the building part. In fact the community part was not intended as a space within which to participate and share refined observation texts or even conclusions, in order to validate them. On the contrary it was intended as a space to confront and negotiate meanings, doubts, hypothesis, in a continuous formal and informal mediation among the community of users [6]. A useful device at users' disposal for a reciprocal help, in order to carry on, share and negotiate observation practices.

In this part the users could add their documents and different materials, they could discuss, express doubts, provide evidences, put in correspondence, etc. This was also the part in which we developed the shared library, in the meanwhile providing an environment that could be improved along the way, through the participation of colleagues and researchers.

Web-Ob could be considered at least:
➢ a self-training course on expert observation method,
➢ a tool to apply an expert observation method,
➢ an instrument to assess children development,
➢ a device to fulfil personal dossier and portfolios, both of children and educators,
➢ an application to develop educative and didactic personalized projects,
➢ a social medium to cooperate for auto refresher educators' training,
➢ a social system finalized to facilitate co-construction and negotiation of meanings within communities of practices;
➢ a social system to share with parents information and data about their children.

3. INFOASILO APPLICATION 2.0

Due to the increasing use of smart devices in the daily life as well as in the work places, in the last time we developed the online environment in a system that can be easily used to collect data, to organize and retrieve them in a coherent and multipurpose way using tablets [7].

Like in Web-Ob, the user can take advantage of a useful path for her/his observation activity, having the main information available at every time they needed. If an educator would like to use the app, at the beginning he/she is asked to fill in some windows in which to provide stable data such as:
✠ the name of the school,
✠ the name and surname of the educator/teacher/observer/user/parent,
✠ the name and surname of the children,
✠ the date of birth of every child,
✠ the list of the daily activities;

⚞   the list of the different places and contexts in which the daily activities take place (providing information about the situation in which the observation is conducted).

The new system provides sliding bars, in addition, through which the educator may choose among:

⚞   a list of possible finalities of the observation (for example to figure out a profile of the child or to collect data to solve learning problems/behaviour problems/interpersonal problems, etc.),

⚞   a list of the possible focuses of the observation (for example the relationship between child and known adult/adults or the relationship between child and unknown adult/adults or the relationship between child and another child, etc.),

⚞   a list of different theoretical frameworks (such as Montessori method, Gardner's multiple intelligence theory, developmental phases of child growth, Kuno Beller's tables, mixed approach) among which to make a choice based on the approach typically used by the educator,

⚞   a list of fundamental indicators linked to the different theories (for example, using MI theory, a list of indicators to define and limit the area of musical behaviours is presented like the following:

> ⚞ listens and responds with interest to a variety of sounds: human voice, music, environmental sounds
> ⚞ enjoys opportunities to hear music or environmental sounds;
> ⚞ eager to learn music from musicians;
> ⚞ uses vocabulary and notations of music;
> ⚞ responds to music kinaesthetically by conducting, performing, creating, dancing;
> ⚞ recognizes different musical styles, genres, cultural variations;
> ⚞ develops a personal frame of reference for listening to music;
> ⚞ enjoys improvising and playing with sounds;
> ⚞ sings and/or plays an instrument alone or with others;
> ⚞ interprets meaning from music;
> ⚞ analyzes and critiques musical selections;
> ⚞ creates original compositions and/or musical instruments).

The lists of finalities, focuses and indicators are open, and educators are allowed to change and add their own finalities, focuses and indicators. In this way the observation job is really facilitated, because the observer only needs to make some choices, just with a touch on the device screen to set up the main information.

Then he/she can find a box in which to describe the behaviours of the observed child in terms of actions, non verbal communication, and verbal expressions, adding in another box her/his interpretation of the observed

activity and situation, that is to say the way in which actions and behaviours referred to the observed child can be connected and become meaningful through the use of a theoretical framework.

A part is available to put in evidence other comments or notes, such as suggestions for further observations, advices for educative or didactic interventions, and so on.

Once logged in, the application remembers the identity of the educator who has logged in and shows him/her the information of interest. The main screen presents the list of activity groups, in addition to other general information. On the left side, the sliding menu always allows the user a quick access to the different functionalities of the program such as:

–   take a written note;
–   take a voice note;
–   take pictures;
–   make short videos;
–   store snapshots in a central database (Fig. 1).

Fig. 1 – An Infoasilo screenshot

The functioning of the system is based on tags, i.e. pieces of information which can be linked to images in order to use and catalogue them in a clever and fast way. Before taking a picture, or after having taken it, educators can specify which activity they are carrying on, where they were and which child or group of children are retracted in the picture. All these actions require just a few touches on the screen. Time is saved and observations can be made with relative comfort by the educator, even if he/she is committed in an activity.

The app automatically adds the tag of the educators identity and of the time, and matches this information to the picture/video itself, in order to make it easy to search it in the archive or to use it as base for a new observation. For example, in a few seconds it is possible to extract from the archive all the pictures retracting the same child while playing or doing a specific activity, or create a new observation without the need of entering the basic information which are already included in the picture thanks to tags.

In addition the program enables to automatically earn some quantitative data such as:

1. how many observations a specific user carried out and accomplished;
2. how many children were observed;
3. how many times a child was observed;
4. how many times a child was observed with respect to a specific finality;
5. the chronology of observations on a child (for example to check her/his development and evolution in specific fields)
6. info on the contexts frequently chosen by the users to observe
7. ... and so on.

The program affords the possibility to store all these information and to retrieve them from the available database (Fig. 2).

Fig. 2 − Educator observing children and using the application

3.1. Observational text: an example

The kind of observational texts we referred above, are shown below (Tab. 1). The theoretical framework, in this case, is Multiple Intelligence Theory [8].

Table 1. The observational texts

Child's name and surname: C.S.	Spatial intelligence
6 months h 10:30 Location: section	Spatial activity: the educator spreads a number of coloured balls on the floor, letting the children follow them with their eyes. C. watches the balls showed by the educator. He shifts his gaze up and down. He follows the trajectories of some balls on the floor. **C. seems able to orient his gaze in order to follow the movements of objects.**
13 months h 10:20 Location: hall	The teacher asks the children to move to the section of the infants for the activity. C. smiles and heads straight for room. **C. shows to know the location of the named room. He confidently moves into the school.**
27 months h 10:00 Location: class	A sheet with a grid is delivered to each child, then two-tone cardstock squares are made available. C. notices the paper and then spontaneously attacks each square within its own space in the grid. **C. seems to take into account the grid and the coloured boundaries.**
32 months h 10:50 Location: section	The children are engaged in an activity with geometric shapes- square, triangle, trapezoid and circle. C. recognizes the forms and pastes them in the corresponding places. **C. shows to recognize shapes and is precise in outline.**

3.2. To store and retrieve information

The program allows users to retrieve info and to print them, following one or more criteria (for example the educator needs to have all the chronologically tidied up observation on a child, in which is documented his or her relationships with the other children, in order to reflect and - maybe - to provide educative actions in this field).

The program also provides the possibility to manage the attitude of the educator towards the children/the contexts/the abilities/etc. In fact, through the monitoring of how many observations one user did, how many children she/he observed or not, how many contexts she or he selected or not, the user herself/himself is enabled to self manage the professional behaviour, redirecting his/her actions and adopting educative strategies.

3.3. The interaction with parents

The system is figured out to allow parents to receive information about their son/daughter. Data connected to meals, health, bodily evacuations, are available in real time on parents smart devices, such as a tablet or a cellphone. For these kind of data educator is only asked to put a check mark into the appropriate box.

Moreover educator may want to share more qualitative data such as his/her observation, in order to make it possible for the parents to monitor their children growth. For these kind of information, educator is asked to make choices and select among the amount of observations, sharing only those considered meaningful and important, because showing an improvement, a success, a development (Fig. 3).
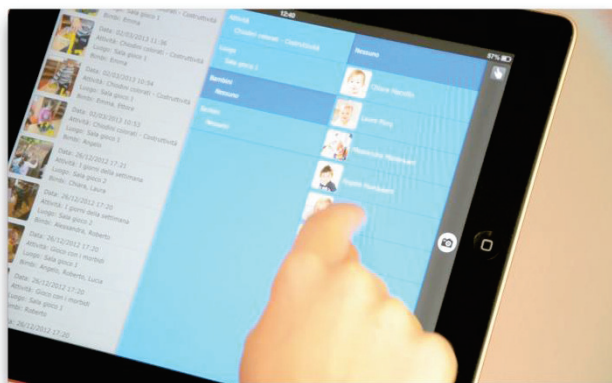

Fig. 3 - The social part of the application

In fact, using the ecological approach of Bronfenbrenner [9], the environments of child's development are considered as a series of concentric systems, linked through direct or indirect relations and hierarchy. The microsystems in which a child lives, such as the family or the nursery or the kindergarten, not always have cooperative communication, either because of the difficulty to have opportunities to meet, and of the different representations of the same child which educators and parents often posses. This difference is largely perceived as an obstacle to the knowledge of the child. But, as the family is the first micro system in which children develop and learn, then parents are to be considered a useful observation "tool". They can collaborate to better understand their children. The reconstruction of what a child does and shows when living and acting in different micro systems has to be considered an enrichment at the meso-system level. Once parents have access to the observational texts related to their child, they can discuss with the educators the meanings they attributed to their child behaviour, reaching a more comprehensive knowledge. Parents can also insert their own feedbacks and/or other observational data, collected in different situations within the family. The app is designed to give the opportunity to significant adults to easily interact, developing a synergy that takes into explicit account of how a child behaves in various micro systems.

In addition, at the end of the year, all the observations considered valuable and important can be easily collected together by the educators for the

parents, who receive a portfolio with these information, enriched with photos, drawings, and other selected documents. Portfolio is aimed to allow parents to better understand the way in which educators are working, and also to show child's trajectories of development within the nursery or the infant school.

4. Conclusions

Observation is a qualitative way to manage children education: educators observe and evaluate children's behaviors in order to be aware of their zone of proximal development [10] and then to decide and choose the kind of contexts to provide them to facilitate their improvements. Observation is as necessary than difficult to realize, because it is time consuming and needs a strong commitment to be accomplished. Infoasilo is an application for tablets designed in order to support educators who want to use observation as a method to project and figure out educative trajectories of development for their children in a high quality way.

Thank to the system, a lot of data are consistently available and actions are automatically completed, so that educators work is extremely facilitated when collecting data about children's behaviors. Using Infoasilo, educators are also enabled to self-monitor and assess their own job, as the application provides both quantitative and qualitative outputs about their work, such as: the number of observations completed, the number of children observed, the variety of contexts taken into consideration, and so on.

Moreover, a systematic interaction between educators and parents is guaranteed, thank to the possibility to share data such as pictures, videos, observation texts.

Anyway the application is only an instrument and the quality of the observations depends on educators competences in managing the observation method. Training paths are required to ensure a good work in this field.

5. REFERENCES

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