

## The Role of Smartphones in Teacher Training Mediated Through Photo-elicitation

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**Abstract-** In this paper, we advance the results of a study on the use of smartphone functions in the permanent training of primary-school teachers supported by photo-elicitation processes. The study began in January 2015 and will end in December 2017. Three teachers participated from the primary schools Jaime Vera in Madrid and La Paloma in Azuqueca de Henares (Guadalajara), Spain. To date, the smartphone functions used for photo elicitation by these teachers to reflect on difficulties in their practice include: taking photos of classroom situations that are judged difficult by teachers; viewing these photos; recording an audio track of sessions reflecting on the content of these images; playing back the recorded audio tracks to transcribe their content and identify the theories and beliefs on which participating teachers' decisions are based and, finally, storing all this information in the cloud (Dropbox, Drive, at the rest).

**Keywords-** teacher education; photo-elicitation; digital hybrids; smartphones.

### I. INTRODUCTION

We begin this section by explaining two conceptual elements. Both are essential to understand the functionality of the phones in teacher training. These are: the reflection on own practice, and photo-elicitation as a means of signification.

#### A. Reflecting on teaching practice

Extensive theorising exists on the value of professionals' critical reflection on their own practice in order to improve their work [3] [6]. Teachers can be helped to improve their work once they are aware of their beliefs, theories, attitudes, values and so on. To do so, teachers must be "forced" to make these explicit. This occurs because they are questioned about what they do, and this is achieved by reflecting on his practice as a teacher. This reflection is included and is one of the three moments of a loop or cycle of Action Research

[2]. Each is made up of a procedure consisting of the three following phases:

1- Planning the teaching or specifying within a document the aims, cultural content, materials and so on that the teachers are going to work on or will need over a period of time.

2- Executing the plan and recording certain moments of it. The plan must be followed and information must be recorded on what occurred during the process. Because it is difficult to reflect on the action while it is taking place, reflection has to take place afterward. To avoid forgetting things or missing relevant details the action must be recorded.

What technological tools are needed to help teachers record their actions and reflect upon them? Those whose primary function is producing information; in other words, audio recorders and cameras that can be found on one of the current digital hybrid devices: smartphones. We propose that mainly teachers should follow this procedure, taking photos of those moments so that later, outside the classroom, they can verbally analyse the content. Therefore, we focus on the languages of verbal and photographic representation.

3- Analysing, questioning, discussing and reflecting on what happened. After having carried out the plan, one must reflect on the value of what took place; we encapsulate it using photo elicitation, for which it is also necessary to use the information reproduction functions that all digital hybrid devices contain. The result of this phase leads to new knowledge on the decisions taken, on the whys or wherefores of the latter and consequently new knowledge of the theories, beliefs and so on that underlie them.

This generated knowledge gradually enriches or improves the work plan for the following action inquiry loop and consequently enhances the teacher-tutor's training.

### B. Photo elicitation as a means of reflection

Eliciting means drawing something out of oneself, arousing an experience, establishing a bridge between the past and the present using a photo [1] [4]. It consists of capturing an image so as to describe it later. Several procedures exist in the field of education: one is that directed by the teacher and the photos she or he takes; another, when students take the pictures, and finally, a mixed procedure in which everybody takes photos. This means the photos are taken by users to be screened later so users can describe what they represent and explain what they have experienced.

In this sense, we consider that photo elicitation is a good procedure for understanding the tangible and intangible aspects of human beings' lives – in our case, the three primary school teachers who aim to improve their teaching practice. At the point of reflection within the action inquiry loops, photos taken by the participants are shown (in our case, only the teachers) on different teaching moments as a base document on which to question, query or wonder about some aspect of the content depicted. This is how we have used one of the underused action inquiry procedures called observational and narrative, McKerman said: that an underdeveloped resource in the conduct of curriculum action inquiry is the use of the still photograph [5].

In Section 2, we explain the objectives and the methodology that we followed. Finally, in Section 3, we present the conclusion and future work.

## II. THE AIMS AND RESEARCH METHOD

This research has two objectives:

- a) Identify the functions required on a smartphone in the training of primary teachers based on photo elicitation processes.
- b) Know whether the photo-elicitation sessions help teachers change their teaching practice.

The data needed to achieve the above aims are being gathered through a supported discussion group in two session types we call photo elicitation and audio reflection.

*Photo elicitation sessions.* These are held every two weeks. During this time, the teachers take photos of events, tasks, dilemmas, conflicts, behaviours and so on that they consider most relevant and interesting in the life of their classroom and other spaces in the center. After each fourteen-day period, the above-mentioned meeting takes place. It lasts about 75 minutes with each teacher separately and takes place when they have some free time during the school day in their respective schools. To do so, the photos taken by each teacher are shown and the teacher, the research group members and student representatives comment on the reasons that led her or him to take each photo. Next, the other group members formulate questions or doubts on the content of the images and the reasons

provided by the teacher and students, either on the decision taken at a specific classroom moment, or on the tasks undertaken by students, etcetera.

*Audio reflection sessions.* An audio recording is being made of the photo elicitation sessions with a two-fold research purpose. Firstly, to analyze each teacher's statements and respond to the questions posed in the first aim of the project, regarding the different uses of the smartphone. Secondly, to codify and create the information provided in the photo elicitation session to be used in the second aim. As stated in the summary above, the discussion group which conducted this reflection consists of the teacher who is the center of the training process, the members of the research team who were present during the prior photo elicitation session, and some students when they appear in the photos. The parents gave permission to use the photos in which their children appeared as long as such use was confined to teaching and research purposes.

## III. CONCLUSION AND FUTURE WORK

Regarding the *first aim*, the smartphone functions that the three teachers used are:

- *Taking photos* of classroom situations the teachers considered complex and conflictive, such as dilemmas, difficulties emerging from the students and so on.
  - *Storing photos in the cloud* (Dropbox, Drive, at the rest).
  - *Viewing* those photos in the photo elicitation sessions with the aid of a projector.
  - *Recording audio files* of the reflection sessions on the content of the images projected.
  - *Storing the audio files in the cloud* (Dropbox, Drive, at the rest).
  - *Playing the recorded audio files* to transcribe their content and identify the theories and beliefs that lie behind the decisions of the participating teachers.
  - *Storing the texts transcribed in the cloud* (Dropbox, Drive, at the rest) for later analysis.
  - *Reading the transcriptions for the analysis* of theories, beliefs, attitudes and so on, on which the teachers base their behaviours and decisions, and communicate such analyses so that the teachers are aware of them, can reflect on their value and consequently decide whether they should change any of the latter.
- Concerning the study's *second aim*, based on the results as of late November 2015, it can be stated that teachers are changing the way they design and approach teaching situations. This is because, according to the analysis of the transcriptions of the photo elicitation sessions, the teachers are becoming aware that they base their actions and decisions on five different aspects of their person:
- Theories: rational ideas or arguments, with a scientific basis.
  - Beliefs: ideas or arguments with no scientific basis.
  - Attitudes: forms or kinds of willingness to do or respond to something.

- Habits: routines they use in certain situations.
- Emotions: feelings about a situation that guide decisions.

The teachers have shown a disposition to change once they become aware that the above five components influence their motivations and decisions, both to improve the school tasks in the classroom and to address the personal difficulties of their students.

Finally, we should indicate that all of the smartphone functions that the teaching staff required in the discussion or photo elicitation processes (those that take place when viewing the image of a photo taken by the teacher and projected on-screen) were used to record moments in the classroom, to bring some quietness to the educational practice in order to slow down the analytical processes. These pauses made it possible to describe and interpret the content reported by the participating teachers, allowing them to reflect and comment on their theories, beliefs, attitudes, habits and emotions so that, once aware of them, the teachers uncovered those that are incongruous with their idea of education or unsuitable for working with that unique and unrepeatable group of students in a specific context.

In the future, we want to deepen the possibilities for smartphones to locate, select and project a part or element of a photograph. We think that the analysis of these details of an image can help teachers to evoke their theories and beliefs. Also, we want to use smartphones to store and play music during sessions photoelicitación. We think that both, the projection of detail and background music, can improve

the evocation of the beliefs and emotions that have promoted the decisions taken in their classrooms.

#### ACKNOWLEDGMENT

A project subsidised by the Ministry of Economy and Competitiveness of the Spanish Government, within the R&D&i State Plan, reference EDU2014-57103-R.

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