CONECTADO IN THE CLASSROOM: APPLYING A VIDEO GAME FOR THE PREVENTION OF BULLYING AT THE SCHOOL

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Abstract

Bullying and cyberbullying are very serious social problems with incidence in all countries regardless of language or culture. Videogames have proven to be an effective educational tool in different domains (e.g. to raise awareness) and we consider that they can be used as bullying prevention tools for teachers in school. However, some teachers still feel uncomfortable using videogames as educational tools. We believe that this can be partly addressed by including educational guides together with the games. Conectado is a video game to raise awareness among 12 to 17-year olds about (cyber) bullying by placing the player in the role of a victim, thus creating empathy towards the victims. In this paper, we present the validation of a teachers' guide for Conectado, intended to simplify and facilitate its application in schools. We discuss the results of a survey of the perceived usefulness of the teacher's guide, and a case study of its actual application by teachers in a school in Madrid (Spain). These initial results provide insights from a real in-class use of the Conectado videogame and show that the guide was well accepted by teachers, as it simplifies the use and deployment of the videogame in their classrooms.

Keywords: Serious Games, Secondary Education, Bullying, Cyberbullying

1   INTRODUCTION

Bullying is a very serious social problem with incidence in all countries regardless of their language or culture. The victims of bullying commonly experience anxiety, fear, low self-esteem and may even suffer serious psychological disorders, including depression, suicidal ideation and suicides [1] [2].

The widespread use of electronic devices, social networks and the Internet, has made this problem grow even more as these tools allow new forms of violence such as cyberbullying [3]. Generally, cyberbullying is defined as bullying that is done through electronic devices. Both bullying and cyberbullying share many characteristics, including the effects and problems caused in the victims [4]; indeed, the main difference between them is the medium by which the aggression is carried out [5]. There are also studies that have found continuity between bullying at school and cyberbullying [6].

Despite the creation of very different prevention programs and other tools, many of which have demonstrated their positive effects, there is still much to do in terms of impact to significantly decrease the number of bullying and cyberbullying cases [7]. Thus, it necessary to research and create new approaches. Note that although electronic devices are used for cyberbullying, they also allow the creation of new prevention tools, such as video games [8].

Serious games (SGs) have demonstrated advantages as educational tools in numerous studies and domains [9]. SGs are adequate for learning knowledge (e.g. mathematics, physics), change behaviours or to increase awareness about social aspects, such as drug addiction [10]. The videogames can also be effective bullying prevention tools for teachers to use in their classrooms. In the last two decades there have already been serious games aimed at preventing bullying and cyberbullying with different purposes, such as increasing empathy, teaching what bullying is, giving advice on how to deal with it, and/or showing ways to behave on the net to avoid it [11].

Even if when games meet all the educational requirements to be applied in classrooms, educators may not find their application that easy, nor have the time to analyse and internalize how to apply the game in their day-to-day activities. In many cases, educators are not familiar with the technology used in the game and do not feel confident with the actual games' deployment. Moreover, training for teachers may also be required to help them in the game administration, and provide guidance on what teachers and students should do while the game is in play.

Distrust of videogame use by teachers may be due to many different reasons, including low technological knowledge, lack of time to apply video games, not knowing how to use the game to support class goals, and/or lack of resources (e.g. computers, money) to use video games. To simplify their application, it is important not only to validate the effectiveness of a serious game but also its actual applicability in real settings. Moreover, it becomes essential to provide the necessary resources to facilitate games deployment in class as well as their adoption by teachers.

Conectado is a serious game to address (cyber) bullying, which aims to raise awareness among young people (12 to 17 years old) about of the consequences of their actions and how they can affect others, as well as to foster empathy towards the victims. In this way, Conectado provides a shared experience for the students, which can be put to good use during a teacher-led reflection session just after playing the game. During this session, teachers can converse with students to emphasize, for victims, the need to ask for help; or, for observers, the likely consequences of allowing bullying to continue unhindered. Conectado has already been validated with young people and teachers from different schools in Spain [12], [13]. Young people average a pre-test score of 5.72 (SD=1.26; scale of 1 to 7), compared to 6.38 (SD=1.11) in the post-test, a statistically-significant effect (paired Wilcoxon test yields p-value < 0.001). Teachers reported good opinions (84%) about the game, describing Conectado as a useful tool that can be applied in class to raise awareness among players and to create a subsequent discussion about bullying and cyberbullying. In order to address the teachers' issues about using Conectado, we have also developed a teachers' guide to help them to apply the video game effectively.

In this paper, we describe the validation of the Conectado teachers' guide. This guide is especially designed for teachers with an educational perspective. For instance, it clearly explains the objectives of the game and how it can be used to promote a fruitful discussion that will help students to reflect on bullying and cyberbullying from the events that they experience while playing it.

Section 2 presents the Conectado videogame and its teacher's guide. Section 3 describes the validation of the guide and how its usefulness has been evaluated. Section 4 analyzes the results obtained with the guide and finally, section 5 exposes the conclusions reached.

2 CONECTADO AS BULLYING PREVENTION LEARNING TOOL

Conectado is a videogame of the graphic adventure genre played in first person (so no need of an avatar that represent the player inside the game). The player, as main character, takes the role of a cyberbullying victim. The goals of Conectado is to make young people aware of bullying, as well as to create empathy towards the victims.

In the videogame, the players start in a new school, where they have to make new friends. Over five in-game days, players, in a safe way, experience what it means to be a victim of bullying. Within the video game, players experience the most common cyberbullying aggressions, such as social exclusion, insults, offensive nicknames, publication of manipulated images to humiliate and laugh at a person, offensive messages, theft of passwords and material objects, blackmail, etc.

Throughout the five in-game days, the player moves between school and home through different scenes. In each of these scenes, the player can interact with the other characters through dialogs. In addition to this, the players will receive messages and publications also on their in-game smartphone and social network. At the end of each day, the player experiences a different mini-game depicted as a nightmare of the main character. These mini-games do not end until the time is up or the player loses. In addition, nightmares are imbued in a dark atmosphere, and are related to the events that the player experienced during each in-game day. The mini-games does not allow the player to win, frustrating the player and transmitting a sense of impotence, a common feeling among bullying victims.

In many of the dialogs, the player can choose between several answers, which will make some of the dialogues and parts of the story change. However, in all variations, the player is finally bullied during the five days. These choices give players a feeling of freedom, making players believe that according to their actions the aggression problem can be solved. There are three possible game endings depending on the choices selected by the players. Only in one of these endings, in which the player asks for help, does the bullying end. The SG has been designed this way to transmit the idea that it is crucial and necessary to ask for help in case of bullying. Another of the endings is bitter (the bully is just expelled a few days); and the third one is bad (the player will continue to be harassed). Both the dialogues and these mini-games are designed to convey negative feelings to the players in order to further increase empathy with victims.

The different roles involved in bullying are represented in Conectado through the main characters' classmates. Among these characters we find: Ana (f) and Alex (m) as bullies; Jose as an active assistant of the bullying; Ana and Guille as active defenders, who throughout the game become active followers and passive followers respectively; and Maria as a bystander. The parents of the player also appear in the game. The optional dialogs with the parents are important in order to reach the good end of the game, representing the importance of the relation with the family, since a bad relationship with the parents is a common risk factor.

To explain the different features of Conectado and how to take advantage of it in a class, we have created a teachers' guide. This guide aims to provide all the relevant information teachers may need to understand why it makes sense to use this video game to deal with bullying, what advantages it provides, and the different ways in which it can be used. The guide is structured as follows:

S1. Introduction, a brief section about the topics covered in the guide.
S2. Bullying and cyberbullying, a brief introduction about what they are and their effects.
S3. Conectado, a section about the videogame and its goals.
S4. Guidance for teachers, a brief section about the whys and hows of using Conectado in class. Also mentions how the guide has been structured.
S5. The game days; this section provides a walk-though for each of the days of the videogame. For each day, the guide describes what happens in the game, what topics the day is about, and how to use this during a subsequent class discussion.
S6. Discussion; a section about the key aspects of the game and how use it in class.
S7. FAQs, a section with the most typical questions asked during the validation experiments.
S8. Download and installation, where to download the game and how run it.
S9. Bibliography and other resources, provides several web links and citations to other sources of information about others tools, serious games, and bullying in general.

Conectado has been designed and developed to be used in class, taking advantage of the characteristics of video games, providing teachers with an open and free prevention tool to deal with the bullying topic in class. In addition to the players' impact validation [12], Conectado has been validated as teacher tool too [13], receiving very good acceptance among teachers (present practitioners and students in teaching degrees). Now, it is important to test whether this guide actually helps teachers to better use the videogame in their classes and take advantage full advantage of the Conectado videogame. The guide has been developed to simplify the use of Conectado, and we have validate it with teachers and contrasted in a high school how teachers get by using the video game with the guide in class.

3   METHODOLOGY

To validate the teachers' guide, we carried out a survey on its clarity, usefulness and content. Twenty teachers from different schools took part in the survey. Additionally, to contrast its application in real scenarios, we carried out an observational experiment in a school in Madrid (Spain). In this experiment, the video game Conectado was applied in four different classrooms, two in their first year of secondary and two in their second year of secondary, with a follow-up session for discussion and reflection. During the experiment, a researcher observed how teachers applied the game, identifying possible problems and checking the extent to which teachers followed the teachers' guide in the subsequent discussion and reflection sessions with their students.

3.1   Guide validation

In order to validate the content of the guide, an online survey was passed on to 20 teachers of Secondary from different academic institutions. The answers were anonymous, and the survey was composed by 7 sections:

1. General information: questions about age range, gender, years teaching, use of video games and experience applying videogames in classes.
2. Time using the guide: section about how long they have taken to read the guide, what sections they have read and if they thought it was long.
3. Clarity: participants rate, on a 1 to 5 Likert scale, the degree to which the language and content of the different chapters of the guide is appropriate and clear.
4. Usefulness of the content as well as of the images that accompany each text. Also rated on a 1 to 5 Likert Scale.

5. Completeness of the content, to know if it is enough, more details are needed in certain sections, or on the contrary some are exceedingly verbose. Also evaluated on a 1 to 5 Likert scale.
6. Opinion on the guide and its usefulness (open response)
7. Verification that the respondent has read the guide and with what degree of detail. This section includes questions are about specific guide's content to check whether or not a certain topic or content is included in the guide.

With this survey we want to validate the content, the interest of the guide and if the teachers see it as a useful resource when using it together with the Conectado videogame.
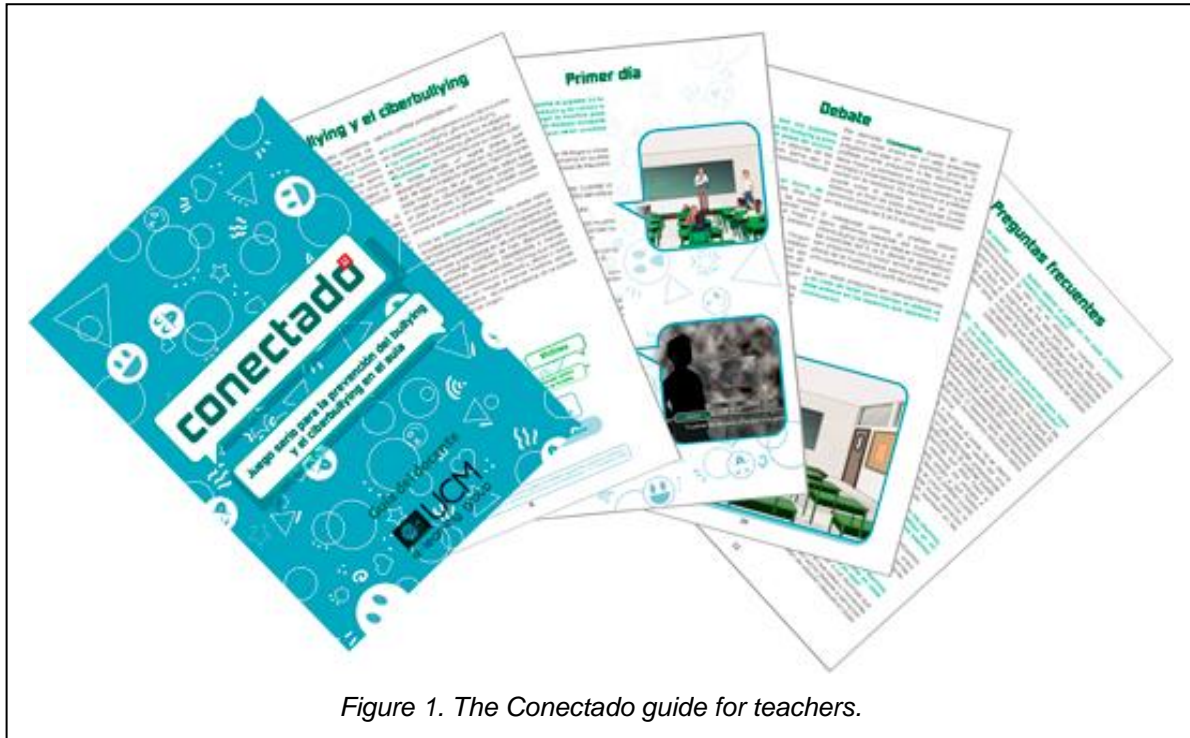

Figure 1. The Conectado guide for teachers.

3.2 Conectado applicability

Conectado has demonstrated its acceptance among teachers and students of educational degrees and also its effectiveness. However, being a tool focused on its use in class, it is necessary to check if teachers are able to use it satisfactorily and if so, how. To this end, an experiment has been carried out in a secondary school in Madrid, Spain, where two classes of 1st Year of Secondary (12-13 years old) and two classes of 2nd Year of Secondary (13-14 years old) classes have used the game.

In order to verify, in a real scenario the applicability of Conectado, the school was provided with a web site to download the video game and the guide to apply it to 4 classes. The invitations to participate in the experiment declare the premises and requirements of the experiment:

- The high school could choose how to apply / use the game, when and how. In order to adequately perform the experiment only next two restrictions were established
- A researcher from the Conectado project had to be present playing and observer role.
- The application of the game had to be made by at least two different teachers. This will enable us to divide teachers in two separate groups where half will have access to the game guide but the other half will not.

In the end, the high school participating in the experiment decided to separate play and reflection sessions in different days. The play sessions were controlled by the tutors of each course. Each class played at a different time. Two of the tutors were given guidance week before, while the other two were not. This design intended to check if there were any differences when it came to run the class during the sessions. The reflection session was carried out by the counsellor of the high school to which the guide was also provided a week early and she had total freedom to structure the class with the activities and questions that he considered appropriate. The main researcher of the project was only an observer and supervised the sessions.

Section 4.2 describes how the sessions were conducted as they were the result of providing the video game to the school. These sessions are the object of study to check if Conectado is applicable by the teachers in class and if the guide is a useful resource for them when applying the video game.

4   RESULTS

The results of both, the surveys and the experiment about the use of Conectado in class, have been positive. We have been able to verify that teachers consider that the content of the guide is useful in helping them to apply the video game, although they think its duration is a little long. In addition, we also confirmed that teachers have been able to apply the video game by themselves, and that they have adapted the guide to make their own personalized reflection sessions with the students, while using the main ideas of the guide as a base. In Figure 2 the reader can see a schema of the different parts of the experiment that we will talk about below.

Figure 2. Schema of the experiments carried out by Conectado and its teachers' guide.
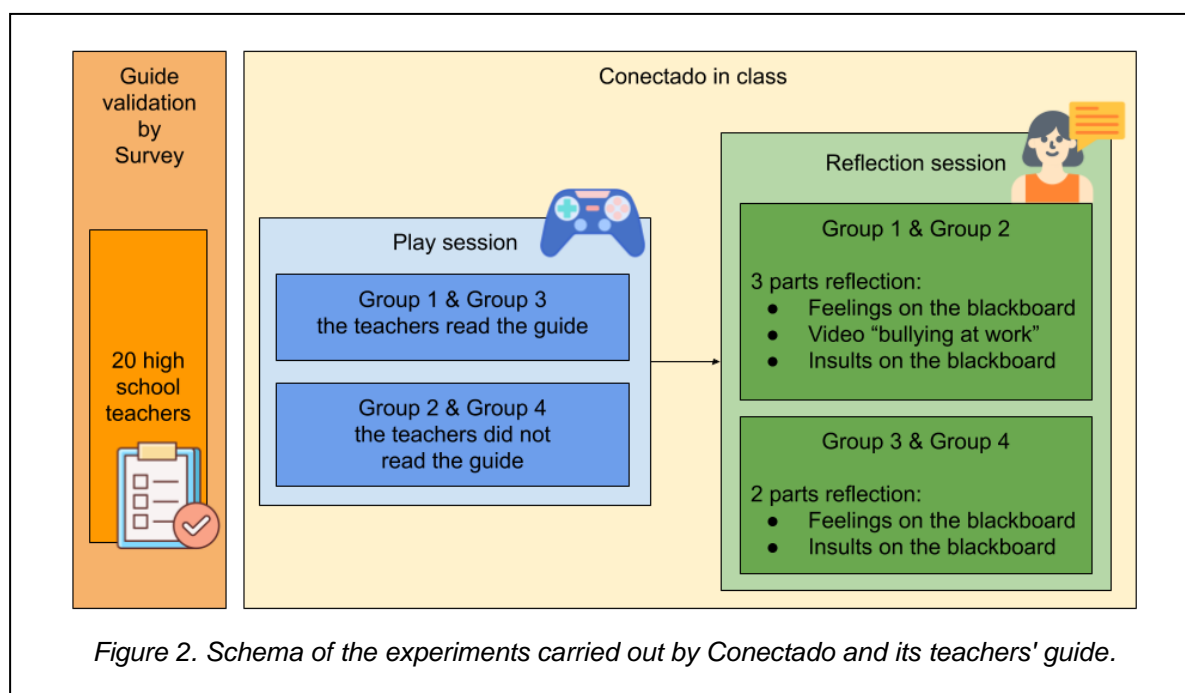
4.1   Guide usefulness

The survey has been fully answered by 20 people, 7 men and 13 women. Most of them are over 49 years old and only 3 are under 30 years old. All respondents have at least 2 years of teaching experience (N=20, M=18.45, SD=9.06). 65% of the teachers surveyed have never applied games in their classes. 6 of the respondents play video games (30%), one of them daily between 1 and 2 hours, the other 5 play between 1 and 4 hours a week, play puzzle games, arcade, strategy, shooter and mobile games.

The maximum time a respondent has taken to read the guide is 60 minutes (N=20, M=22.56, SD=23.73) having read most of the guide. The least read section is that of references and other resources. In contrast, the most read sections have been the guide for each day of the game (See Table 1). In general, the length is appropriate although 20% of respondents thought it was long. In terms of the language used, 90% thought it was appropriate and good.

On the other hand, the language seems to be clear in most of the guide, although 20% see the section on Conectado (S3) as unclear and 5% the sections on teacher orientation, each day and discussion (S4, S5 and S6). On the other hand, 80% think that the images accompany the text and are adequate, 10% do not see it clearly and 10% think that only part of the images do their goals.

Regarding the general opinion about the guide, 90% of respondents like it and only one of them (5%) is negative (speaking about the videogame) because they say that the approach does not seem right and that when playing the video game has not felt empathy for any of the characters. Another of the aspects asked in the survey were the miss or excess of the guide's topics. Teachers declared that, among the topics to be covered by the guide about the game, a 10% think that it is necessary to add a more detailed

explanation about how to move and what to do in the game. Regarding theoretical issues, 20% asked to include explanations about the following topics: the motivations of the aggressors to behave like this; safe ways to use social networks; explanation of the importance of acting as passive role; a section on didactic methodology. Among the things to remove, 20% see the need to shorten the theoretical questions mentioned in the guide, change the end of the game and synthesize the text of the guide.

Table 1. Distribution of the guide's content reading level.

	Deep reading	Skim reading	No reading
S1 - Introduction	85%	10%	5%
S2 - Bulling	85%	15%	0%
S3 - Conectado	80%	20%	0%
S4 - Guidance	80%	20%	0%
S5.1 – Day 1	95%	5%	0%
S5.2 – Day 2	90%	10%	0%
S5.3 – Day 3	95%	5%	0%
S5.4 – Day 4	85%	15%	0%
S5.5 – Day 5	90%	10%	0%
S6 – Discussion	80%	20%	0%
S7 – FAQs	80%	20%	0%
S8 – Download and Installation	55%	20%	25%
S9.1 - Bibliography	40%	40%	20%
S9.2 – Other Resources	50%	45%	5%

Finally, to check if they had read the guide and up to what level they remembered it, 9 questions were asked about it. Only 10% answered everything correctly and another 10% had less than 5 successes. The average of correct answers was 6.95 out of 9.

4.2 Conectado in Class

The high school that participated in the experiment had the freedom to decide how to apply the game and how to carry out a reflection session based on the students' experience when playing Conectado. As we have already mentioned, the school split the application of Conectado in two different sessions, the first one, a play session led by the tutors of each of the 4 classes that have participated and another reflection session with each of the classes led by the school counsellor, shortly after the play session. In all cases, less than a full week passed between the play session and the reflection session.

4.2.1 Play Session

The high school downloaded and installed the video game on all computers without external help and following only the instructions included in the guide. During the play sessions, there was a large difference between teachers who had access to the guide and teachers who did not. The two teachers who did not have access to the guide asked what to do quite often, while the two who had read the guide did not ask for help and also reported higher confidence. When students asked what to do in classes where teachers had no access to the guide, their teachers asked either the observing researcher for help or asked another student. On the other hand, teachers with the guide did not need to ask the researcher for help, except in one case where a student closed the game by mistake and the session tutor asked this student to start over.

During the experiment, if a problem occurred and was not solved by the session's teacher, the session observer waited for two minutes before approaching the students to see if they could solve the problem alone. Except in the previously-mentioned case of the student who had closed the game, it was not necessary to help anyone since the students solved their problems themselves before the two minutes ran out, sometimes with the help of colleagues who were next to them.

4.2.2 Reflection Session

The school counsellor divided the reflection session into 3 activities, although in two of the four groups, due to lack of time, only two of the three activities were carried out. This can be seen on the right side of Figure 2.

The first of the three activities was focused on the videogame experience. The students were split into groups of between four and five students each (five groups total). Each group was given two sheets of paper. The first one included the question "What feelings did you experience while you were playing", leaving enough blank space to write down those feelings they experienced when playing Conectado. The second one included two questions, "What subjects are dealt with in the videogame?" and "What caught your attention the most?", leaving enough blank space again to write down the subjects dealt with in the game. In this second sheet, students were asked to provide specific cases, instead of simply writing down "bullying and cyberbullying". To speed up the process of collecting the feedback, groups were asked to follow additional instructions: in the first sheet, and within each group, each student had to write down one feeling and pass the sheet to the classmate on their left; and in the second sheet, after writing one item, they had to pass the sheet to their classmate to the right. The groups had 8 minutes to answer the three questions.

Once the time was over, both sheets of each group were put in common with the rest of the class, by choosing a spokeperson to read aloud what the group had written down. The researcher acted as an observer, and wrote down the main feelings on the blackboard by request of the school counsellor (see Figure 2).

Feelings of sadness, empathy, and anger appeared in all 4 classes; while loneliness, helplessness, and overwhelm appeared in 3 classes. The class with the lowest variety of feelings totalled 10, and the one with the most 16. Among the 4 classes, 36 different words appeared, among which are: sorrow, rejection, pity, nerves, distrust, intrigue, low self-esteem, anger, worry, fear, and frustration.

Regarding the topics that appear in the game, all classes mentioned bullying or cyberbullying; and among the things that were highlighted are lies, exclusion, insults, nicknames, bad jokes, hurting peers, stealing, violence, and the impact of bullying on third parties.

On the other hand, among the things that caught their attention the most are the way that the protagonist was treated, the nightmares that appear in the game, how the bully starts bullying because of a confusion on seating assignments with the bully on the first day of the game, how friends stop defending you in the middle of the game, not being able to defend yourself, and not being able to ask for help until the end of the game.

Figure 3. The observer taking notes about students' feelings on the board.

With all the words on the blackboard the counsellor began a reflection on how victims of bullying could feel in real life, highlighting all the negative feelings noted and how in real life a person can feel much worse time than in a game. On the other hand, in addition to this, she highlighted the importance of asking for help in case of being a victim or of offering it if situations such as those of the game are witness (cases which were also noted on another page).

The second part of the session in the two 1st Year of Secondary classes consisted of playing a video of a man who was being bullied at work. When the man gets home with his wife and children, he says that his day has gone well. The video ends with the fact that 75% of people who suffer from bullying do not mention it or ask for help. The video was used to compare it with the game, and to ask the students how they would act in such a case. In addition to seeing that bullying does not only happen in the school environment, but that it can happen in other places. This was not repeated in the 8th grade classes as the time was very tight, and the counsellor preferred to give more importance to the other two phases.

In the last part of the different sessions the students had to go out on the blackboard and write down the different insults they had been told over the last few years. Then they had to look at the blackboard and the counsellor asked some students how these words made them feel. The students highlighted feelings they had said before when talking about the game and how they had sometimes been made to feel that they were worthless as people. On the other hand, some students remarked that these insults are sometimes jokes between friends, and that they affect them in very different ways depending on the person who insults them and the overall context. Finally, they were given a video (https://www.youtube.com/watch?v=uUEvKbk5-4E) of a social experiment very similar to this last part, where students from a school wrote down the insults they had been told and how they felt, and where they finally had to say something they liked about a classmate. The video ends with the reflection that many times people insult and bring to light other people's defects very easily, while it appears to be harder to give deserved praise.
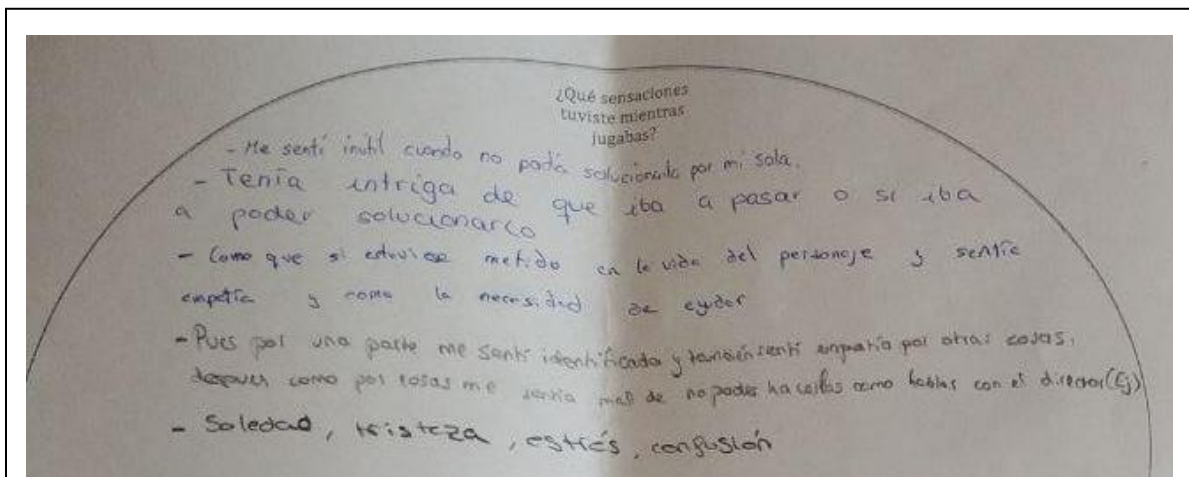

Figure 4. One of the sheets collected during the experiment.

5   CONCLUSIONS

This paper describes how the validation of the teacher's guide to the serious game Conectado has been carried out, and how the video game and guide have been put into practice at a high school in Madrid, Spain. Teachers perceived the guide as a useful resource and consider that it provides all the relevant and necessary information for the teacher who wants to apply Conectado in class. In addition, the described experiment has shown the need and usefulness of the guide in a real uncontrolled scenario as well as the applicability of the videogame. Although the game impact in students (increasing cyberbullying awareness) has already demonstrated in previous experiments, its utility and the good reception among teachers has not been proved until this experiment, where the need for a teacher's guide has been demonstrated. Furthermore, this experience makes it clear that although a game may be well perceived by education professionals, it is necessary to create training resources to help them with their application, in this case by means of a guide.

We also learnt how to improve the guide. For instance, we have to add instructions for cases where the player closes the game and at the request of the teachers we have already added sections where they

can take notes if they print the guide. And we have been able to contrast how Conectado can be complemented with other activities to lead to reflection and combat bullying. In this case combining it with videos and group activities. However, one of the limitations of this study is that Conectado has been applied teacher led and in an uncontrolled manner but observed in only one high school. Though it should be noted that few serious games that are developed for use in class are associated with as many different experiments as Conectado, which has proven its effectiveness, acceptance and applicability in different ways.

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