

## Article

# Exploring the Impact of the Video Game Monité on Exogenous Factors and Resilience against Bullying in Primary Education Students

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**Abstract:** This study focuses on the issue of school bullying and explores the potential of video games as a tool to prevent and address this problem. To accomplish this, the video game Monité, specifically designed for the prevention of school bullying, was utilized, using the paradigm of digital game-based learning as an intervention methodology that emphasizes its educational and recreational potential. This study was conducted using a quasi-experimental approach, employing a pre-test and post-test design with a non-equivalent control group. The sample consisted of 92 boys and girls from fifth and sixth grade in primary education in the province of Cáceres, Spain. Data were collected through questionnaires from the System for the Evaluation of Children and Adolescents (SENA), which allowed for the gathering of information on peer problems, school problems and family issues. The results show that there are significant differences between the intervention group and the control group regarding problems external to individuals. In conclusion, this study investigates the use of the video game Monité as a tool to prevent school bullying and analyzes its impact on students' perception of external agents such as family, peer group, and school. Our findings support its implementation in educational environments as an effective strategy.

**Keywords:** videogames; bullying; scholar harassment; resilience



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## 1. Introduction

For years, bullying has been the problem that compromises the classroom atmosphere the most by establishing roles of aggression and victimization among students [1,2]. In this study, we considered it necessary to focus on variables external to the child (family, peers, school) that are affected by these processes. To do this, we used a video game that focused on bullying prevention [3]. It should be noted that intervention with video games in the educational context has multiple methodologies and can be approached in many ways (gamification, serious games, digital game-based learning). In the case of this study, the digital game-based learning (also known by the acronym DGBL) paradigm was selected as an intervention methodology and as an approach to video game treatment to change subjects' attitudes. Numerous studies have proven the effectiveness of this methodology [4–10].

### 1.1. Theoretical Foundations

The DGBL paradigm takes advantage of the didactic potential of video games by adapting the teaching–learning process to these recreational tools [11]. Therefore, this paradigm is born from the student's need to locate knowledge and tools related to their developmental context that are consistent with their perceived reality. Ref. [12] defines

teachers as designers of learning, giving a didactic sense to the video game itself; consequently, strategies must be established to guide teachers in coherently planning the implementation of video games as a methodology that is present in the educational praxis integrated in the learning process. Furthermore, [13] suggests that there are three approaches to the DGBL paradigm: (a) students as designers, where they learn to develop video games through the development of one; (b) the use of video games created to teach, e.g., serious games, educational games, gamification, etc.; and (c) integrating commercial video games in the classroom as a complementary element (commercial off the shelf, also known by the acronym COTS).

Following the development of game processes to their current concept, video games have caused the proliferation of these products all over the planet, even arousing interest in areas that were previously not linked to recreational processes. These fields have been able to reconfigure video games to trigger learning acquisition, the simulation of real scenarios, skills training, motivation, etc. [11,14].

However, it should be noted that the benefits of video games did not become evident until several studies began to investigate the possibilities of using them to develop certain skills related to concentration, problem-solving, spatial perception, etc., [15–17] similarly to studies and research that linked video games and learning [10,12,18,19].

The didactic and recreational aspects of the educational processes that involve the use of video games must always be balanced [4,6,12,20–22], firstly so as not to detract from the educational side itself, and secondly so that the teacher does not become overly associated with the purely formal sense of education and thus remains in the background because of the use of the video game. Both concepts must support each other, which is why it is necessary for the teacher to understand what approach they want the learning process to take (motivation, curiosity, knowledge, involvement, etc.).

Serious video games, whose purpose is to train the player to acquire a specific skill, ability and/or knowledge, arise within this paradigm [23–25]. The aim of serious games is twofold: not only must they be attractive and stimulate replay (recreational dimension), but they must also effectively fulfill the object of their creation (didactic dimension): to induce learning, modify attitudes, train skills, and develop competencies. In addition to graphic and software designers, pedagogues and experts in the specific knowledge addressed by the video game play an important role [14,25–27].

### 1.2. Bullying in the Educational Context

Currently, one of the most significant problems that requires a solution within the educational context is bullying among peers, so-called school bullying [1,2,28–35].

School bullying can be defined as intimidation, abuse, and physical and psychological mistreatment of one child or group of children over another or others. It includes a series of different kinds of negative actions, such as teasing, mocking, hitting, exclusion, abusive behavior with sexual and emotional connotations, and, of course, physical aggression [36–40].

Research classifies the existence of four types of school bullying (Table 1):

**Table 1.** Typology of School Bullying.

Type	Description
Physical	Violent behavior against the physical integrity of other individuals; kicking, biting, hitting, pinching, and pushing. Indirect behavior directed against the property or production of other individuals: stealing and damaging.
Verbal	Behavior such as insults, nicknames, slander, taunting, and speaking ill of others in public (physical or psychological defects). In recent years, this type of mistreatment has been supported by technology (social networks, forums, chats, etc.).
Social	Conduct that seeks to isolate the victim from the group (indirect harassment). The victim suffers marginalization and being ignored.
Psychological	Behavior aimed at negatively affecting self-esteem, creating insecurity and fear.

Source: Adapted from [29,41,42].

Given this typology, it is worth mentioning that in bullying processes, three fundamental factors are involved, which are raised by [43], in which two human and one contextual factor stand out. These human factors are linked by an interaction (bullying) that is produced by complementary characteristics (strength–weakness, victimization–aggression, leadership–isolation, among others). These factors are:

- Aggressor (aggressive human factor).
- Victim (submissive human factor: they lack the means to escape the aggressor on their own).
- School context (witnesses: other students, teachers, or family members).

The different problems that develop in the processes of school bullying can, in turn, lead to feelings that are transformed into insecurity and fear of the school context, because it is in this context that aggressions occur. It is also where the aggressors, victims, and passive agents, who allow these aggressions by interacting both passively and actively, co-habit. The victims consider school to be a place that undermines their emotional balance, and so they develop adverse feelings that translate into conflicts in their immediate environment [44]. Numerous studies have been conducted on school bullying; they confront a problem that is integrated into all levels of the school system. School bullying is a social problem that not only affects the school environment but also spreads to the social and family environment [45–48].

It can be observed that many of these feelings are related to social perception. However, this type of victim enters into a vortex in which, despite suffering harassment, their attitude prevents them from opposing the situation and confronting it, making it difficult for them to get out [44,49,50].

It should be noted that teachers are the last adults to whom students communicate their problems [49,51]. However, as [52] pointed out, parent figures are highly important in the face of school violence, as this is where students find their salvation from a vulnerable situation.

### *1.3. Serious Games and School Bullying: Monité, an Anti-Bullying Serious Game*

The concept serious games was coined by [53] in the 70s; it refers to the selection of the formal aspects (players, objectives or goals, and rules) that make up a game and give it an educational purpose. However, in order to shape a game with these characteristics, it is significantly important that the rules that structure the game are constructed in such a way as to manage the action of the processes involved, focusing on the acquisition of the proposed objectives. The player is immersed in a dynamic in which there is no winner; the game is won when the objectives, which are closely linked to the acquisition of some kind of knowledge, ability, or skill, have been fulfilled.

As it is accompanied by the adjective “serious”, it is presupposed that the game includes specific characteristics related to the educational context. The video game is used as the central axis on which the content is conveyed, as well as the central axis for the learning of skills and/or abilities; this motivates and encourages proactive attitudes related to the teaching–learning process [25].

Serious games are tools that students can relate to, allowing them to operate in a fictional world, meaning their actions have no direct consequences in the real world. That is, given that the virtual environment is not real, students can experiment and make mistakes without the fear of damaging instruments or other individuals [54]. Based on this, this type of video game is intended to enable the student to acquire a specific ability, skill, and/or knowledge. As the students are protected from the actual results, the video game allows the use of error as another mechanism for learning, stimulating learning by discovery and meaningful learning. Serious games make use of one of the characteristics of video games, which is that a player knows that they will be exposed to many mistakes before achieving success [55].

During treatment with this type of video game, the student is placed in a training environment to experience learning, as well as to rehearse the learning obtained through

the internalization of learning patterns. Video games allude to the preponderance of the lived experience linked to the object of learning through an immersive state that could well be included in the states of flow [56]. The player extrapolates what they learn from the virtual world to the real world, which in turn transforms them from a simple player (recreational aspect) to a student (didactic–recreational aspect). The difference between the person who plays to learn and the person who simply learns by playing fades away, as the user is not aware of what they are learning through the video game [57].

Serious games offer the potential to make users aware of a problem (environmental, social, political, economic, etc.), to advertise a product, to experience unusual situations, and to rehabilitate patients, among others [58–60].

The serious game used for this study is called *Monité*. It was developed by the company Nesplora with the endorsement of the Ministry of Industry, Energy, and Tourism. It is a video game oriented towards the prevention of behaviors related to school bullying. The plot and narrative were developed by the children’s author Daniel Nesquens in collaboration with the Urkide pedagogy center, who developed the video game’s complementary guides. The program is composed of software (*Monité* video game), user manuals (for parents, educators, and therapists), videos, stories, and a website to share experiences [21]. *Monité* is available in three different packs:

- Clinical pack: this software package is used as clinical therapy.
- Family pack: for family use, containing a user guide for parents.
- School pack: for licensed use in schools.

In the case of this research, the school pack was employed, including tests for teachers, students, and families.

*Monité* is a serious game with colorful graphics that could be classified within the platform genre. Your adventure consists of several worlds, and three of them are still in development (Clown Planet, Indifferent Planet, and Electro Planet). Currently, the only one included with the video game is Raining Planet, which focuses on the prevention of school bullying and cyberbullying. Much of the video game’s narrative revolves around the positive influence of friends, as well as the need to confront problems in order to solve them.

Different minigames related to positive choices regarding friendships are proposed through a journey in which you must capture objects with positive references (smiles, comics, candies) and preventive actions against bullying are represented in an escape in which the player has to follow a path and avoid the enemies that appear; there is another game in which objects (trash cubes) are dropped from the top of the screen that cause discomfort to the protagonist and they must avoid them.

The didactic strategies used in this game are based on communication and collaboration among the students to overcome the tests, as well as resilience, as the students understand the problem and confront it, and finally, empathy, which is crucial to understand how each of the people affected by bullying problems feel. These strategies are carried out through conversations in the game between the main characters and during the progression of the aforementioned levels.

Finally, as we have seen in the previous sections, many serious games are created to work on a problem or to deal with a problem, either through education or awareness-raising. It is thanks to these capabilities that serious games have achieved their status as an educational tool in many areas.

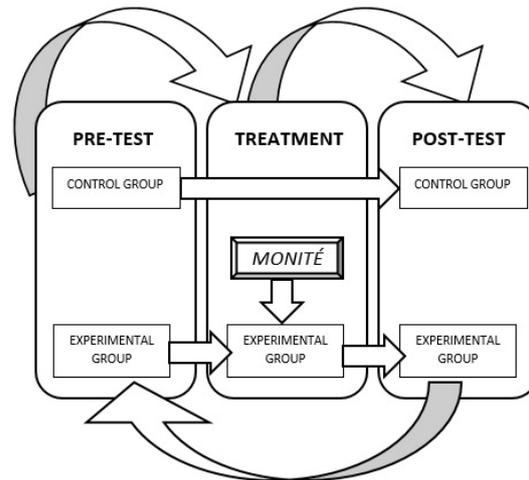
#### *1.4. Hypothesis, Aims, and Objectives*

The main objective of this study was to analyze the influence of the video game *Monité* on students’ perception of exogenous agents: family, peer group, and school. Furthermore, two specific objectives analyze whether changes were produced in the groups after the implementation of the treatment and the subsequent analysis of the data obtained. These objectives were: (a) to carry out a prevention treatment using the *Monité* video game and (b) to find out if the use of the *Monité* video game affected the prevention of school bullying.

## 2. Method

### 2.1. Methodological Approach

The study presented in this article was developed with a quasi-experimental approach with a pre-test–post-test design and a non-equivalent control group. Established (unaltered) groups were selected, to which the following procedure was applied: a pre-test, a treatment, and finally, a post-test (see Figure 1).



**Figure 1.** Quasi-Experimental Design. Source: Own Elaboration.

In order to pose the problems associated with the phenomenological fact, we had to formulate a hypothesis that addressed the research questions. For this study, a causal hypothesis was chosen, as the aim was to discover whether the video game helps or not in the prevention of bullying. To this end, the following hypothesis was formulated: the video game Monité helps prevent harmful behaviors associated with school bullying.

- Once the hypothesis was formulated, the contrast statistic was calculated. The null hypothesis ( $H_0$ ) was the non-existence of differences between the groups compared. If the bilateral significance was greater than 0.05 (Sig. > 0.05), we therefore concluded that there were no variations between the groups compared.
- The alternative hypothesis ( $H_1$ ) was the existence of differences between the groups compared. If the bilateral significance was under 0.05 (Sig. < 0.05), we accepted the alternative hypothesis, which concluded that there were variations between the groups compared.

### 2.2. Study Population or Sample Size

The sample of participants in the study consisted of 92 boys and girls ( $N = 92$ ) in the 5th and 6th grades of primary education obtained from the participation of several primary education centers in the province of Cáceres (Spain). In order to carry out this study following the guidelines of the Bioethics and Safety Committee of the University of Extremadura for studies in the field of social sciences were followed. We took into account acceptance signatures of the informed consent given to parents, legal guardians, and teachers in charge. All the participants fully responded to the questions in the questionnaire and to the specific questions of the variables that make up this study; for this reason, no analysis of missing values was added.

### 2.3. Variables

For this research, we studied those variables that refer to problems exogenous to the individual. Each of the variables is composed of a series of items that must be added together to obtain the required scores. The variables used are categorical, using a Likert

scale for each item (1 = never or almost never; 2 = rarely; 3 = sometimes; 4 = many times; and 5 = always or almost always). Those included in the study are:

- **Problems with peers:** Related to negative interactions with peers in class, such as violent and/or aggressive physical, psychological, and social behaviors. It evaluates the degree to which the person feels rejected or isolated by their peers at school and reflects the perception of tension, misunderstanding, and lack of support in their interactions with them. A high score on this scale may be the result of a situation of social isolation or direct or indirect aggression by peers, and may therefore be an indicator of bullying. This variable is composed of the following items:
  - o Some classmates force me to do things I don't want to do.
  - o They call me names at school
  - o I get hit at school
  - o My classmates ignore me
  - o My classmates treat me badly
  - o They make fun of me at school
  - o I am afraid of a classmate
- **Problems at School:** Referring to problems related to the school environment, such as lack of motivation, isolation, school failure, negative self-concept, and social isolation. It evaluates the level of rejection of the person towards school and, more generally, towards study or academic aspects. It reflects a negative attitude towards the educational institution, study and teachers, as well as dissatisfaction or discomfort when attending school. The items that make up this variable are as follows:
  - o I look for excuses not to study
  - o School is silly
  - o Studying seems boring to me
  - o Teachers make me feel silly
  - o I struggle in my studies
  - o My teachers only see what I do wrong
  - o I hate school
- **Family Problems:** Referring to the existence of violent and/or aggressive behaviors at home; such behaviors include physical, psychological, or social aggression, as well as emotional issues related to the individual's role within the family. Evaluates the degree of stress, misunderstanding, and lack of family support perceived by the person being evaluated. This variable is made up of the following items:
  - o In my house there are fights
  - o I would like to change my family
  - o My family supports me in the things I do
  - o My parents yell at me
  - o My parents hit me
  - o My parents love me
  - o I am important in the family
  - o I have problems at home

#### 2.4. Information-Gathering Instruments

We used the SENA (Child and Adolescent Assessment System) questionnaire [61], which is composed of different scales organized into items. These scales present the following structure:

- "Control scales" that determine the confidence that the researcher can place in the results obtained.
- "Problem scales" that explore the difficulties and disorders assessed.
- "Vulnerability scales" that assess aspects that contribute to the maintenance or onset of severe problems or disorders, but are not problems per se.
- "Personal resources" that include protective factors that can be used to support intervention.

### 2.5. Data Analysis

The data collection process was carried out in three stages divided into pre-test, treatment, and post-test:

- Pre-test: the SENA questionnaires were administered to both the control group and the experimental group.
- Treatment: fifteen days after the pre-test, the Monité video game was used at the school to deal with the problem of school bullying through a classroom dynamic with the experimental groups.
- Post-test: following the treatment, the SENA questionnaires were administered again to the control group and the experimental group.

This study was carried out over five days: one day to perform the pre-test on the control and experimental groups, three days to implement the video game in the experimental group, and another day to perform the post-test on the control and experimental groups.

The experimental group used the video game in their classroom during the hour-long subject "Social and Civic Values"; the game was installed on the school computers because the licenses were limited and could not be used elsewhere or with other devices. During the game time, the experimental group faced different tests based on routes to collect objects or avoid obstacles through a narrative adapted to children.

Once the three stages of the experiment were completed, the data were collected and ready to be analyzed and collated to provide the information necessary to confirm or disprove the hypothesis and, subsequently, the objectives.

The data analysis was carried out using the statistical analysis package SPSS (Statistical Package for the Social Sciences) version 23.0, with which we proceeded to carry out the basic statistics of frequencies in the data and contrast analysis of the hypotheses to which the data had been subjected.

## 3. Results

### 3.1. Descriptive Data

The data presented in this section are descriptive and related to two blocks divided into group variables and SENA variables. We present the data collected for these variables both in tables and graphs that make them easier to understand.

Of the 92 students, girls made up the largest group, 48 (52%), followed by 44 (48%) boys (see Table 2).

**Table 2.** Sex Variable of the Selected Sample.

Sex	N	%
Male	44	48
Female	48	52
Total	92	100

With respect to age, it is worth noting that four age ranges were present in the study: 28 (30%) students were 10 years old, 46 (50%) students were 11 years old (the largest group), 17 (19%) students were 12 years old, and 1 (1%) student was 13 years old (see Table 3).

We selected two correlative grades in order to have samples of populations with similar ages at slightly different academic and life stages. Specifically, 46 (50%) students were in the fifth grade and 46 (50%) students were in the sixth grade. Both grades were selected because of their higher maturity levels in relation to the test and the phenomenon being studied. Both grades contained the same number of students (see Table 4).

**Table 3.** Age Variable of the Selected Sample.

Age (Years Old)	N	%
10	28	30
11	46	50
12	17	19
13	1	1
Total	92	100

**Table 4.** Grade Variable of the Selected Sample.

Grade	n	%
5th	46	50
6th	46	50
Total	92	100

At the same time, the school distributed the grades in two classes (A and B) due to the high number of students. The distribution placed 44 students in classes 5-A and 6-A and another 48 students in classes 5-B and 6-B (see Table 5).

**Table 5.** Class Group Variable of the Selected Sample.

Class Group	n	%
A	44	48
B	48	52
Total	92	100

For this study, we decided to divide the four classes into two groups: the control group and the experimental group. The experimental group contained 44 (48%) students from classes 5-A and 6-B, while the control group contained 48 (52%) students from classes 5-B and 6-A. We decided to select which classes would belong to the control group and the experimental group in such a way that both the fifth and sixth grades of primary education would be represented in both groups (see Table 6).

**Table 6.** Classification Variable of the Control and Experimental Group.

Classification	n	%
Experimental Group	44	48
Control Group	48	52
Total	92	100

Next, we proceeded to analyze the exogenous variables. To this end, a series of tables and graphs were drawn up to provide a pre-test and post-test for comparison. During the analysis, the direct scores were transformed into T-scores, as it was necessary to compare the results obtained in the tests with those offered by the instrument [61].

The measurements obtained for the variable “Problems with Peers” (see Table 7) resulted in a pre-test mean of 10.33 and a standard deviation of 4.77. In the post-test, the mean obtained was of 9.64 and the standard deviation was 4.39.

**Table 7.** Data Related to the Variable “Problems with Peers”.

Variable	Mean	Standard Deviation
Peer problems (pre-test)	10.33	4.77
Peer problems (post-test)	9.64	4.39

The data relating to the variable “Problems at School” are contained in Table 8. During the pre-test, the mean obtained was 15.48 with a standard deviation of 3.56. In the post-test, the mean was 14.69 with a standard deviation of 3.13.

**Table 8.** Data Related to the Variable “Problems at School”.

Variable	Mean	Standard Deviation
Problems at school (pre-test)	15.48	3.56
Problems at school (post-test)	14.69	3.13

The mean obtained during the pre-test for the variable “Family Problems” (see Table 9) was 21.40 with a standard deviation of 2.467. In the post-test, the mean was 20.89 with a standard deviation of 2.29.

**Table 9.** Data Related to the Variable “Family Problems”.

Variable	Mean	Standard Deviation
Family problems (pre-test)	21.40	2.46
Family problems (post-test)	20.89	2.29

### 3.2. Effect Size

Once the control group and the experimental group were defined, in order to comparatively observe the differences, the effect size was calculated with Cohen’s *d*. Cohen’s *d* is defined as a statistical measure that weighs the correlation existing either between two variables or between two groups [62].

The “Family Problems” (see Table 10) variable presented an effect size to take into account, with a Cohen’s *d* score of 0.28, resulting in a small effect size that indicates a variation between the control group and the experimental group.

**Table 10.** Calculation of Cohen’s *d* Score for the Variable “Family Problems”.

Variables	Control Group	Experimental Group	Cohen’s <i>d</i>
Family Problems	0.085	0.37	0.288

After calculating the effect size, a series of non-parametric tests were carried out to compare both the individuals in the control group and in the experimental group, and the results of the post-test with respect to the pre-test. To do this, we carried out the Wilcoxon test.

In the variable “Problems with Peers” (see Table 11), the following results were extracted:  $z = -2.03$  and  $p < 0.05$ , which allows us to accept the alternative hypothesis, and to determine that there are differences between the pre-test and post-test concerning this variable.

**Table 11.** Results of the Wilcoxon Test for the Variable “Problems with Peers”.

	Test Statistics	
	Z	Asymptotic Sign (Bilateral)
Problems with peers (Post-test)–problems with peers (pre-test)	−2.03	0.04

Source: Own research data.

The variable “Problems at School” (see Table 12) shows the following data:  $z = -2.21$  and  $p < 0.05$ . Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, concluding that there is variation between the pre-test and post-test results.

**Table 12.** Results of the Wilcoxon Test for the Variable “Problems at School”.

	Test Statistics	
	Z	Asymptotic Sign (Bilateral)
Problems at school (post-test)–problems at school (pre-test)	−2.21	0.02 *

Source: Own research data. (\*): null hypothesis rejected with  $p$ -value  $< 0.05$ .

The results referring to the variable “Family Problems” (Table 13) are:  $z = -2.02$  and  $p < 0.05$ . This confirms the acceptance of the alternative hypothesis and the rejection of the null hypothesis. Therefore, we concluded that there are variations in the post-test with respect to the pre-test.

**Table 13.** Results of the Wilcoxon Test for the Variable “Family Problems”.

	Test Statistics	
	Z	Asymptotic Sign (Bilateral)
Family problems (post-test) Family problems (pre-test)	−2.02	0.04 *

Source: Own research data. (\*): null hypothesis rejected with  $p$ -value  $< 0.05$ .

In summary, it can be observed that in each of the exogenous problems whose perceptions were measured with the instrument, a  $p$ -value  $< 0.05$  was obtained, showing the existence of significant differences between the two groups.

#### 4. Discussion

The problem of school bullying has a multidimensional characterization, as we have seen in the literature review. This takes a multiplicity of disciplinary approaches into account in the common objective to find a complex response that allows for the understanding of the coordinates of its prevalence.

The results show that once the contrast analysis of the hypothesis was carried out on the empirical data, the Monité serious game made it possible for significant differences to be observed before and after the treatment, related to the variables observed, that is, the exogenous factors related to school bullying processes. Although it should be noted that the effect size is small, this effect was produced on the pre-test in the experimental group. This supports the idea defended by [52], where close groups are perceived as protective factors against the problem of bullying.

This problem, as reflected in other research [47,60,63], can be somewhat relieved if the individual immersed in school bullying processes receives tangible support from other individuals that advise, help, and defend them against these practices that undermine the school and social reality of those affected; in this case, other individuals can be adults (family, teachers) or others close in age (schoolmates, family or friends).

Through the use of *Monité*, students can observe how the main character is helped in their adventure throughout the video game by several friends, all of whom offer them advice and intervene to make their journey more bearable. This analogy is what influenced the change of perspective in the students analyzed, perceiving the exogenous agents with a perspective oriented to support and help, to a sense of community. These learnings and new conceptions correspond to previous results utilizing the precepts of digital game-based learning [4,6,11–14,21] and serious games [23–25,27,58].

#### 4.1. Conclusions

In relation to the data found and the discussion carried out, it should be pointed out that in quasi-experimental educational studies, the sample size is one of the limiting aspects when it comes to generalizing the data. In any case, we are aware that if the sample were enlarged, once the empirical data were observed, the treatment would be shown to be more effective.

Furthermore, addressing the rest of the objectives, it can be pointed out that the perceptions of the sample groups delimited by the exogenous variables that we intended to analyze (family problems, problems with peers, and problems at school) were positively modified in the results shown after treatment; the analyzed subjects decreased their behaviors of harassment and/or victimization related to these elements, reinforcing motivation, self-concept, and empathy. In other words, the perception of the exogenous problems analyzed decreases their impact after treatment.

Although this research offers preliminary results, it demonstrates the possibilities for change in the attitudes and perceptions of the subjects and defines a road map for both the educational community and for families when it comes to teaching values that prevent this type of behavior. The family, the peer group, and the school become protective factors in bullying situations. Therefore, the construction of education action guides that reinforce these agents of action, which seem to be key in the prevention of school bullying, is to be expected.

Finally, it should be noted that far from the mythical idea that the use of video games (in this case, a serious game) in educational processes causes doubts about their educational effectiveness, the tremendous support these electronic media provide in the fight against school bullying has been demonstrated. However, they are certainly not the only solution. The uses of and didactic strategies for video games require supervision and monitoring in order to be implemented through teaching methodologies in the prevention of the current problem of school bullying.

#### 4.2. Limitations

Since this study is part of a much larger study, it has some limitations that will be addressed in the future:

- (a) A quantitative methodology was chosen. However, it is believed that the possible replications of the study should be treated with a mixed methodological approach because the numerical results are incomplete with regard to in-depth knowledge of the main reasons why students identify themselves with one or another item and the substantial changes experienced regarding the topic of bullying while being exposed to the video game *Monité* as a learning treatment.
- (b) Only one instrument was used. Combination with other data collection instruments to compare dimensions may be helpful to observe the phenomenon in a more holistic way.
- (c) A longer research period would have helped to assess the long-term effects of *Monité*.

These limitations are typical of initial studies, but will be taken into account to improve subsequent research.

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