Digital Educational Resources to Promote Prosocial Behavior in Cyberbullying

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Serious Digital Game
(SFRH/BPD/110695/2015)

Application Twitter
(PTDC/MHC-PED/3297/2014)

Paula Costa Ferreira\textsuperscript{1,2}, & Ana Margarida Veiga Simão\textsuperscript{1,2}

\textsuperscript{1} CICPSI, Faculty of Psychology, University of Lisbon
\textsuperscript{2} Foundation for Science and Technology (SFRH/BPD/110695/2015)
Digital tools such as applications, websites or games can be used to help adolescents feel more protected online and to prevent harmful online events.

**Self-reflection**

**Self-awareness**

**Self-regulation**

**Assertiveness**
1. Assessing needs and authorization request
2. Setting the game’s change objectives
3. Choosing intervention methods for program design
4. Developing the game
5. Planning for implementation and sustainability
6. Evaluation of the program
Assessing needs and authorization request

Survey data was gathered from a total of 1,607 students ($M_{age}=15.1$, $SD=2.27$) studying in Portugal to conduct the first two phases.

**Literature review and needs assessment**
**(prevalence rates and impact on students)**

**Authorization**

Ethics Committee of the Faculty of Psychology of the University of Lisbon,

The Portuguese Ministry of Education,

The National Commission for Data Protection,

The schools’ board of directors, the parents and the students.
Assessing needs and authorization request

The most frequently observed behavior (from once a month to various times per day):

- Spreading rumors (63.9%)
- Making fun of (68.7%)
- Insulting (69.4%)

Students felt significantly more negative ($M = 2.17$, $SD = 1.02$) than positive ($M=1.80$, $SD=.74$) emotions with regards to the incidents they observed [$t(670)=11.33$, $p=.00$].

CYBERBULLYING

ANGER, SADNESS, FEAR, GUILT
Assessing needs and authorization request

These findings led to phase 2 where target behavior and determinants were assessed to establish change objectives.

Literature Review on bystander behavior and determiners of human behavior

Bystander Intervention Model

(Cognitive Factors
(also called “Personal Factors”)
- Knowledge
- Expectations
- Attitudes)

(Darley & Latané, 1968)
Setting change objectives

The Noticing the Event Questionnaire ($\alpha = .90$) to measure observed cyberbullying behavior; 9 items (on a Likert-type scale of 1 = never to 5 = various times per day)

The Event Interpretation Questionnaire ($\alpha = .95$) 6 items and asked adolescents (on a Likert-type scale of 1 = not applicable to 6 = always)

The Attributing Responsibility Questionnaire ($\alpha = .76$) 7 items (on a Likert-type scale of 1 = not applicable to 6 = always)

The Reflective Decision-making Questionnaire ($\alpha = .93$) of 5 items (on a Likert-type scale of 1 = not applicable to 6 = always)

The Adolescent Self-efficacy Questionnaire to Solve Cyberbullying Situations ($\alpha = .98$) unidimensional; 9 item questionnaire (on a Likert-type scale of 1 = totally disagree to 5 = totally agree)

The Bystander Intervention Questionnaire (Direct problem-solving Behavior Scale with 7 items: $\alpha = .97$; Aggressive Behavior Scale with 3 items: $\alpha = .93$; Reporting Behavior Scale with 5 items: $\alpha = .91$)
Setting change objectives

Reflective Process
- Noticing the event
- Interpreting the event
- Attributing Responsibility
- Decision-Making
- Self-efficacy Beliefs

Determinants

Target behavior

Structural equation modeling

The model presented 23% of the variance relating to adolescents’ aggressive bystander behavior, 58% for problem solving behavior and 38% for reporting behavior.

Data from 676 (42%) 5th to 12th grade students ($M_{age} = 14,10; SD = 2,74; 55,5\%$ were male) from three groups of schools in the centre and southern area of Portugal.
Change objectives were established with regards to the target age, bystander behavior, personal and normative moral beliefs, self-efficacy beliefs and strategies for solving cyberbullying situations.

Content analysis: suggestions of adolescents (N=1230) were considered, as well as their legal guardians (N = 345) and teachers (N = 59).
Choosing intervention methods for program design

Com@Viver: A serious game to investigate bystander behavior and promote empathy and pro-social behavior

Social agents (victims, cyberbullies & bystanders) with different profiles, backgrounds and relationships with the players (bystanders).

Developing the game

In phase 4 the game and other material were designed and pilot tested ($N = 28$).

- Liked to play the game (46%)
- Believed the game reached its objective of promoting pro-social behavior online (58%)
- Was useful (54%)
INTERVENTIONS COM@VIVER
Planning for implementation and sustainability

Roadmap

Session 1: Pre-test
Session 2: Presentation of the game and practice
Session 3: Game Case 1 - Diagnostic
Session 4: Game Case 2 - Formative
Session 5: Game Case 3 - Formative
Session 6: Game Case 4 - Formative
Session 7: Post-test
Session 8: Group Interviews
Session 9: Group Interviews

Groups

Experimental Group
Control Group 1
Control Group 2

221 7th and 8th grade students from 8 different classes from three different schools.

(EG) played the game (N = 115),
(CG1) did not play the game, but viewed the storyline on paper (N = 50)
(CG2) had regular classes (N = 56).

Backoffice for researchers and teachers
Overall players revealed higher levels of cognitive empathy, empathic concern and affective empathy than those who did not play the game. Players referred appraisals and factual cognitions against cyberbullying, as well as empathy towards the victim.
Com viewBoxer Online application aims to promote pro-social behavior in online interactions by helping adolescents regulate their behavior.
INTerventions ComViver

Development of ComViver Online application

1. Diagnostic study to identify and categorize aggressive language used online by adolescents
2. Development of the application
3. Face validation of the application and a quasi-experimental study to evaluate its impact
4. Longitudinal study to understand how adolescents regulate their behavior
Stage 1 results: Diagnostic study

**Participants:** 5th to 12th graders (N=1,607, M_age = 15.1, SD=2.27, 52.3% girls) from schools in the Metropolitan Area of Lisbon

**Instrument:** Inventory of Observed Incidents of Cyberbullying (IIOC)

<table>
<thead>
<tr>
<th>Category</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bystanders</td>
<td>82%</td>
</tr>
<tr>
<td>Victims</td>
<td>47%</td>
</tr>
<tr>
<td>Aggressors</td>
<td>40%</td>
</tr>
</tbody>
</table>
40,000 tweets from public data and expressions collected from 100 semi-structured interviews with adolescents were analyzed by two independent researchers to identify:

1. Aggressive language;
2. Intentionality to harm;
3. Aggression between peers.

2,000 interactions from 5,850 tweets collected from the previous analysis were analyzed by four independent researchers to identify the presence and frequency of conflicts and/or attacks.

1. Detection of aggressive language considering that cyberbullying is often manifested by the use of language as an expression of aggressive behavior (Souza, Veiga Simão, Ferreira, & Ferreira, 2017)

2. Detection considering the context of online interactions and on the repetition of behavior according to the definition of cyberbullying
Stage 1: Conclusions

Collected data and its analysis allowed the development of a classifier of automatic detection of cyberbullying which was integrated in the Com Vivo Online application.

Automatic cyberbullying detection along with automated messages intend to encourage users to reflect on their online behavior.
Stage 2: Application development

Results from stage 1

Development of the ComViver Online application methodology and content

Cyberbullying language classifier

Psychoeducational embedded resources
INTERVENTIONS COMVIVER

PSYCHOEDUCATIONAL RESOURCES

Did you know that...?

True stories

Inspire yourself

Know more about...

Videos

Express yourself
Stage 3: Face validation and quasi-experimental study

- 9th graders (N=16, M_{age}=14.50, SD=0.63, 63% boys) from a public school in Lisbon tested the ComViver Online application prototype
- Adjustments were made according to participants’ perceptions and suggestions
Aggressiveness predicted personal moral beliefs about cyberbullying and emotional well-being negatively and intentions to engage in cyberbullying behavior positively.

Adolescents’ personal moral beliefs about cyberbullying explained the relationship between aggressiveness and their intentions to engage in cyberbullying behavior, such that the indirect effect was lower.

Adolescents’ aggressiveness decreased when using the digital application.

These results suggest that the application may have contributed to help adolescents self-regulate their aggressiveness through the set and combination of self-regulation strategies which were integrated in this digital tool.
Thank You!

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