Developing and Testing ScrollQuest: A Video Game Targeting Rejection Sensitivity in Adolescents

Anouk Tuijnman

Behavioural Science Institute
Radboud University Nijmegen,
6525 HR Nijmegen, Netherlands

a.tuijnman@pwo.ru.nl

Prof. dr. Isabela Granic

Behavioural Science Institute
Radboud University Nijmegen,
6525 HR Nijmegen, Netherlands

i.granic@pwo.ru.nl

Josh Whitkin

Josh Whitkin Design

josh@whitkin.com

Prof. dr. Rutger C.M.E. Engels

Trimbos Institute
3521 VS Utrecht, Netherlands

University of Utrecht
3512 JE Utrecht, Netherlands

rengels@trimbos.nl

Abstract

Depression affects a large proportion of adolescents and current interventions only have moderate effects. With the potential of video games for emotional and mental health in mind, we developed a video game for rejection sensitivity, which is a major risk factor for depression. A process of intensive collaboration between game designers and mental health experts led to the video game ScrollQuest, that combines three evidence-based psychological treatment techniques while maximizing engagement. The results of a pilot study with nine father – son dyads showed that we were partially successful in translating the treatment techniques to engaging game mechanics. We discuss limitations of the study and focus on future directions. The development process and the final prototype of ScrollQuest illustrate the exciting future for games for emotional and mental health.

Author Keywords

Video Games; Social Rejection; Adolescence; Mental Health; Depression; Intervention.

ACM Classification Keywords

J.4 [Social and Behavioral Sciences]: Psychology; K.8.0 [Personal Computing]: General – Games.

Rejection Sensitivity and Depression

Depressive symptoms peak during adolescence [3, 8] and during those teenage years, youth spend increasingly more time with peers. Parents, on the other hand, have less insight into what their children are doing [14]. This means that rejection from peers can have notable negative consequences, and that these consequences in turn can be amplified when an adolescent is sensitive to rejection [7].

Rejection sensitivity has been defined as "*the disposition to anxiously expect, readily perceive, and overreact to rejection*" [12]. It can lead individuals to spiral into a vicious cycle of aggressive or withdrawn behaviors and rejection, ultimately leading to the emergence of serious mental health problems like depression.

Introduction

Social rejection is a profoundly distressing and ubiquitous experience: everyone has experienced some level of social rejection and almost everyone can say they have rejected someone else at one point in their lives [24]. Social rejection activates similar parts of the brain that are activated when we are hurt physically [13], suggesting that rejection is profoundly painful and noticeable on the biological level. Even though rejection is part of human lives, long-term challenges can occur when someone has been rejected repeatedly over time. The stress that builds up due to repeated exposure to rejection can result in increased sensitivity to the potential for future rejection, called rejection sensitivity [12]. Rejection sensitivity has previously been linked to mental health problems, in particular depression, in adults and youth [2, 7, 26, 30].

In recent years, there has been an increasing interest in using specifically developed (applied) video games to treat mental health problems such as depression [4, 9, 10, 19, 27]. Considering the role of rejection sensitivity in the course of depression, targeting rejection sensitivity is a particularly promising intervention strategy and we aimed to do this by using a videogame. For this purpose we have developed the game ScrollQuest. ScrollQuest is a co-operative game that incorporates moments of rejection. There were two sets of challenges we faced in developing the game. First, developing a video game with intervention purposes requires a balance between engagement and joy on the one hand and on the other hand providing in-game opportunities to experience authentic rejection (and the distress associated with these experiences) so that players are motivated to learn coping skills. Although the idea of using applied games for treatment purposes sounds promising, youth don't always find these games appealing [29]. Second, translating psychological treatment techniques into effective game mechanics is another challenge, since they cannot be directly copied from one to the other. In this paper, we elaborate on the methodology and design process that facilitated us to address these challenges. We also present insights from a pilot study that aimed to explore whether ScrollQuest has the potential to help vulnerable youth become less sensitive to rejection.

Targeting Rejection Sensitivity

In targeting rejection sensitivity we used three evidence-based psychological treatment techniques that hold promise for impacting on this risk factor. The first technique is exposure [21], which works by having people repeatedly confront increasingly difficult situations they find most challenging and would normally avoid. For rejection sensitive adolescents, these could be peer contexts in which there exist (potential) rejection opportunities. During exposure, adolescents are challenged to alter their negative thoughts, emotions and behaviors that are evoked by these situations. The second technique is reappraisal. After being exposed to distressing experiences, adolescents need to learn how to regulate their negative emotions, through reappraisal, or "changing the meaning a situation has" [17]. By changing the explanation for rejection from something personal to something non-personal negative feelings can be decreased. Third, modeling is a technique used to teach adolescents to reappraise rejection situations. Modeling involves another person providing examples of using reappraisal techniques, such that the adolescent can learn them by copying [18]. Moreover, modeling is not just useful for helping an adolescent find different

Games for Mental and Emotional Health

Many depression intervention programs have been developed in the last five decades, but unfortunately most result in moderate effect sizes [32]. Moreover, many (young) people do not seek help for their problems, due to problems such as stigma [20]. In addition, therapists struggle to keep clients engaged, especially youth [11] and help is not always available for those living outside urban areas [19]. There has been a recent interest in using video games as a potential platform for mental health interventions [4, 9, 10, 19, 27]. Benefits of video games include their ability to engage players, potential lower stigma compared to traditional therapies, increased accessibility and more opportunities to practice learned skills and behaviors repeatedly [4, 9, 19].

explanations for why they might have been rejected. Helpful behaviors can also be modeled by others. When dealing with difficult situations, adolescents use different behaviors to cope with the negative emotions in those situations. Similar to how reappraisal can be modeled by someone else, another person can also show examples of more adaptive behaviors to cope with rejection situations.

ScrollQuest

Design Process
To target rejection sensitivity in a video game by using the three evidence-based treatment techniques (exposure, reappraisal and modeling), we aimed to create a game that includes rejection situations that evoke strong negative feelings, but that at the same time enables and motivates players to continue and learn from the in-game experiences. In terms of serious game design theory, we aimed to develop an effective and fun tool, arguing that players must satisfy intrinsic motivations with the game. We have rejected 'gamification' approaches as insufficient as they rely primarily on extrinsic or weak intrinsic motivations [5]. To target intrinsic motivations, we've employed the Activity-Goal Alignment (AGA) theory [31], a broad framework for serious games which argues that designers must align the project's goal (in our case exposure, reappraisal and modeling) with the player activity (game mechanics and strategy). To be able to do this we have relied on the experience of both the game designer and the mental health experts on the team in finding effective fits between treatment techniques and game mechanics. This project required an intense collaboration between all team members to focus on subtle variations on the design that achieve our goals. This meant that every design choice and

game iteration was not only playtested by the target group, but also reviewed by the mental health experts on its match with the scientific foundation of the treatment techniques.

From Treatment Techniques to Game Mechanics
The project started with a workshop in which we identified the three core treatment techniques - exposure, reappraisal and modelling - that we incorporated in the game. Both game designers, mental health experts and children were involved in this workshop. The decision was made to specifically target fathers and sons. Boys who experience depressive symptoms are understudied and undertreated [28] thus games could be a way to reach and engage them. Then, to fit the theory into a game design, the team set a goal by defining a target user experience. They wrote hypothetical quotes from future users. These fictional user quotes reveal strong motivation from both the play experience and the treatment. Moreover we aimed to make parents feel competent as fast as possible, so we used mechanics (rules, goals, and strategies) that were intentionally similar to fantasy role-playing games parents could have played in their youth. The 1985 hit arcade game Gauntlet [15] and Ultima III: Exodus [16] were two specific references.

The first treatment technique, exposure, was translated to moments when adolescent players are rejected explicitly by in-game peers. To allow for the second technique, reappraisal, to occur, reasons for the rejection were left ambiguous and therefor open to interpretation by the adolescent. This was done by not allowing verbal communication between peers in the game. Moments of reflection were built in, in which the adolescent has the opportunity to voice

Cyberball

To our knowledge, no game that focuses on rejection sensitivity has been developed. There is one exception: in the last 20 years, the online ball tossing game Cyberball has been used to evoke feelings of rejection [33], however, Cyberball has not been used for intervention goals, and it is generally perceived as a boring task [1].

ScrollQuest

Figure 1. Example of a Fight level in ScrollQuest.

Figure 2. Example of a Campfire level in ScrollQuest.

Treatment Techniques	Related ScrollQuest Experience
Exposure	Not healing; not helping to defeat monsters; not reviving; not asking for or giving money; using the "thumbs-down" emoticon; voting for the player to be frozen
Reappraisal	No verbal communication in the game; moments of reflection during the campfire and vote levels
Modeling	Couch co-op setting; moments of reflection during the campfire and vote levels

Table 1. Translation of treatment techniques to the related ScrollQuest experience.

his/her interpretations. Finally, the third technique of modeling was translated into the game experience by creating a couch co-op setting in which parents serve as potential models. We hypothesized that fathers could model adaptive thoughts and behaviors through conversations while playing the game. For the full list of game mechanics that were translated from treatment techniques, see Table 1. In total, 16 distinct prototypes were build and about 50 playtests were conducted to develop the version that was used in the pilot study.

ScrollQuest Gameplay
ScrollQuest is presented to players as a cooperative casual role-playing game in the style of a commercial indie game. ScrollQuest can be played on a PC with two players sharing a keyboard. A typical game experience involves four players and two PCs. ScrollQuest is a top-down turn-based exploration/fighting role-playing adventure game (Figure 1 and 2). Players are free to choose cooperative (e.g. players can defeat monsters together and heal each other) or competitive strategies (e.g., only one player can collect gold from each chest), but the fantasy story emphasizes the cooperative elements of the game.

ScrollQuest consists of a combination of three types of levels. The gameplay starts with a Fight level (Figure 1) in which players have to defeat monsters and find gold in chests by attacking those characters or items. Once all chests are cleared from a Fight level, the game continues to a Campfire level (Figure 2). The Campfire level serves as a moment of reflection in which players are able to heal themselves, upgrade their stats, revive other players and trade gold. This creates a potential moment for fathers and sons to start a conversation. A third level type is the Vote level. In the Vote level, players vote for the player who will be frozen in the next Fight level. Players sharing a keyboard can discuss voting strategies, thus stimulating conversation between father and son. After all players have voted, the result of the vote is shown (both the individual results of the players and the final result). During the next Fight level, the player who was voted out can not do anything in this level except for communicating by using "thumbs up" and "thumbs down".

One round typically lasts between ten to 20 minutes, consisting of four Fight, four Campfire and three Vote levels. Exposure to rejection occurs during all levels,

Details Pilot Study

Procedure. Nine father-son dyads with sons between 14 and 17 years old played four rounds of ScrollQuest at home with two other 15-year old boys online (played by a researcher). The researcher rejected the sons in round 2 and 4. Participants were briefed on the deception right after the experiment.

Measures. The sons filled in a questionnaire on rejection sensitivity [12] beforehand. To assess whether the sons were affected by the rejection in ScrollQuest they filled in questions on mood [6], on what way playing the game had threatened their basic psychological needs [33] and on perceived intensity of rejection and perception of group cohesiveness [33]. Video recordings of the father and son were used to observe whether reappraisal and modeling occurred. An interview was conducted for the evaluation of ScrollQuest [23].

while reflection and opportunities for reappraisal and modeling mainly come in during the Campfire and Vote levels.

Pilot Study

We conducted a pilot study with nine father-son dyads to explore the potential of ScrollQuest as an intervention for rejection sensitivity and to identify future directions for its development. ScrollQuest was not intended to act as a fully-developed intervention tool, but as a first step to investigate whether we could elicit feelings of rejection for the exposure techniques to be built upon and to investigate opportunities for reappraisal and modeling. Ethical approval for this study was provided by the Ethics Committee of the Faculty of Social Sciences from the Radboud University (identifier: ECSW2016-2208-415).

Insights from the Pilot Study
All players found aspects of ScrollQuest that they enjoyed, and it was the cooperative nature of the game that interested the players the most. Most sons, and some fathers mentioned they would pick up this game if it was available online.

Some, though not all, of the sons felt rejected by the other players in ScrollQuest. Most sons indicated that the vote against them and the consequence of not being able to play was the reason for feeling rejected. There was little conversation between fathers and sons about the rejection experience. It could be that the mere presence of the father helped the sons deal with the rejection, because it provided them an opportunity to be distracted. Indeed, in most cases the sons were quickly distracted, because they either watched and/or actively coached their father in the game. This

behaviour could also be seen as a form of problem-solving in which they solved the problem of not being able to play by coaching their father. Although it is a positive finding that these boys found adequate ways to deal with the rejection [22], outside the game context these opportunities might not be so easily accessible. In that sense, it could be that ScrollQuest was unable to mimic real life and the game needs adjustments to truly expose players to rejection. On the other hand, it could also be that the boys who played ScrollQuest are not the boys that could benefit from playing a video game aimed at reducing rejection sensitivity. Indeed, the results of the questionnaire on rejection sensitivity indicated that these boys were not particularly sensitive to rejection.

We found little evidence that ScrollQuest was able to stimulate conversations between fathers and sons. Fathers were not modelling different appraisals or adaptive coping behaviors to help their sons deal with the rejection. It could be that fathers had to put too much effort into playing ScrollQuest and were unable to help their sons. Indeed, a few fathers indicated they had trouble playing the game. However, we could also make the same point as with the translation of the exposure technique. Maybe the fathers were confident that their sons would be able to deal with the rejection, because they know their sons are not sensitive to rejection.

Overall it seems that ScrollQuest has potential to create rejection episodes and at the same time engage its players. Yet, the results of the pilot mainly provided new ideas to change ScrollQuest and the way it is delivered to achieve the goal that it was designed for.

Study Limitations

Self-report. By using self-report measures for mood, the adolescents had to correctly assess afterwards how they were feeling during the rejection. A possible (unobtrusive) way to solve this problem is by using software that automatically assesses the sons emotional states using for example facial expressions [25]. It would also allow for analysis of the emotions of players during specific moments in the game (in the case of ScrollQuest: the rejection moments), instead of asking for a general assessment of mood after a gaming session.

Normative sample. We did not enroll high-rejection-sensitive boys. Although we deliberately chose to test ScrollQuest in a normative sample first, we are not able to draw any conclusions about the effects of rejection in ScrollQuest on rejection sensitive youth.

Future Directions
After evaluating the results of the pilot study, we see two potential avenues to explore for ScrollQuest. As said above, fathers seemed to provide distraction for their sons after rejection moments. Without experiencing strong negative feelings similar to those in the "real world", the player is not truly exposed to these stressful situations and s/he cannot learn from them. The first new direction ScrollQuest could take is to be played alone with three other players online, instead of together with a peer or parent. This could improve the technique of exposure. The techniques of reappraisal and adaptive coping strategies could then be incorporated by adding feedback in the game that help players think of alternative meanings for the rejection and help them find adaptive coping strategies.

Second, we believe ScrollQuest has the potential to serve as an assessment tool for rejection sensitivity and an alternative to both the Rejection Sensitivity Questionnaire (RSQ) [12] and the widely used research tool Cyberball [33]. The problem with the RSQ is that people have to think about hypothetical situations in which they can potentially be rejected, while in ScrollQuest they are actually confronted with rejection. Cyberball does provide the opportunity for live rejection, but there is no opportunity to respond. Within the pilot of ScrollQuest, most participants believed the other players to be real boys of the same age. The participants were enjoying the game and they were fully engaged. Future research with an adjusted version of the game based on the results of the pilot study could show the potential of using ScrollQuest as an assessment tool. Combining this with software that automatically assesses emotional states and a back-end that records in-game behaviors, ScrollQuest could be

the next step in studying the effects of rejection sensitivity.

Closing Remarks
In translating psychological treatment techniques to game mechanics, it is important to find ways to engage players through game design mechanics while at the same time exposing them to difficult situations that might evoke strong negative feelings. Our experience has taught us that it is crucial to constantly test levels of engagement, and at the same time, the psychological outcomes we are targeting. Subsequent discussions interpreting the results of these playtests between game designers and mental health experts are critical to guide future game development and intervention designs. This requires significant time and energy investments from both the game designers and the mental health experts. We see an exciting future, not just for ScrollQuest, but for games in the field of mental and emotional health more broadly, especially through these cross-disciplinary collaborations.

Acknowledgements

References

[1] University of California - Los Angeles. 2003. Rejection Really Hurts, UCLA Psychologists Find. Retrieved April 11, 2017 from http://www.sciencedaily.com/releases/2003/10/031010074045.htm

[2] Ozlem Ayduk, Geraldine Downey and Minji Kim. 2001. Rejection sensitivity and depressive symptoms in women. *Personality and Social Psychology Bulletin*. 27, 7: 868-877. http://dx.doi.org/10.1177/0146167201277009

[3] Judit Balázs, Mónika Miklósi, Ágnes Keresztény, Christina W. Hoven, Vladimir Carli, Camilla Wasserman, Alan Apter, Julio Bobes, Romuald Brunner, Doina Cosman, Pádraig Cotter, Christian Haring, Miriam Iosue, Michael Kaess, Jean-Pierre Kahn, Helen Keeley, Dragan Marusic, Vita Postuvan, Franz Resch, Pilar A. Saiz, Merike Sisask, Avigal Snir, Alexandra Tubiana, Airi Varnik, Marco Sarchiapone and Danuta Wasserman. 2013. Adolescent subthreshold-depression and anxiety: psychopathology, functional impairment and increased suicide risk. *Journal of Child Psychology and Psychiatry*. 54, 6: 670-677. http://dx.doi.org/10.1111/jcpp.12016

[4] Max Valentin Birk and Regan L. Mandryk. 2016 The Benefits of Digital Games for the Assessment and Treatment of Mental Health. In *Computing and Mental Health Workshop* (CHI '16), 1-5.

[5] Ian Bogost. 2011. Gamification is Bullshit. Retrieved April 11, 2017 from http://www.bogost.com/blog/gamification_is_bullshit.shtml

[6] Margaret M. Bradley and Peter J. Lang. 1994. Measuring emotion: the self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry*. 25, 1: 49-59. http://dx.doi.org/10.1016/0005-7916(94)90063-9

[7] Joanne M. Chango, Kathleen Boykin McElhaney, Joseph P. Allen, Megan M. Schad and Emily Marston. 2012. Relation stressors and depressive symptoms in late adolescence: rejection sensitivity as a vulnerability. *Journal of Abnormal Child Psychology*. 40, 369-379. http://dx.doi.org/10.1007/s10802-011-9570-y

[8] Patricia Cohen, Jacob Cohen, Stephanie Kasen, Carmen Noemi Velez, Claudia Hartmark, James Johnson, Mary Rojas, Judith Brook and E. L. Streuning. 1993. An epidemiological study of disorders in late childhood and adolescence - I. Age- and gender-specific prevalence. *Journal of Child Psychology and Psychiatry*. 34, 6: 851-867. http://dx.doi.org/10.1111/j.1469-7610.1993.tb01094.x

[9] David Coyle and Gavin Doherty. 2009 Clinical Evaluations and Collaborative Design: Developing New Technologies for Mental Healthcare Interventions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (CHI '09), 2051-2060. http://doi.acm.org/10.1145/1518701.1519013

[10] David Coyle, Nicola McGlade, Gavin Doherty and Gary O'Reilly. 2011 Exploratory Evaluations of a Computer Game Supporting Cognitive Behavioural Therapy for Adolescents. In *Proceedings of the SIGHCHI Conference on Human Factors in Computing Systems* (CHI '11), 2937-2946. http://doi.acm.org/10.1145/1978942.1979378

[11] David A. Crenshaw. 2008. *Therapeutic Engagement of Children and Adolescents: Play, Symbol, Drawing, and Storytelling Strategies*. Rowman & Littlefield, Lanham, MD.

[12] Geraldine Downey and Scott I. Feldman. 1996. Implications of rejection sensitivity for intimate relationships. *Journal of Personality and Social Psychology*. 70, 6: 1327-1343. http://dx.doi.org/10.1037/0022-3514.70.6.1327

[13] Naomi I. Eisenberger, Matthew D. Lieberman and Kipling D. Williams. 2003. Does rejection hurt? An fMRI study of social exclusion. *Science*. 302, 5643: 290-292. http://dx.doi.org/10.1126/science.1089134

[14] Wyndol Furman and Duane Buhrmester. 1992. Age and sex differences in perceptions of networks of personal relationships. *Child Development*. 63, 1: 103-115. http://dx.doi.org/10.2307/1130905

[15] Atari Games. 1985. *Gauntlet*. Game [Arcade]. (October 1985). Atari Games, Milpitas, California, U.S.

[16] Richard Gariott. 1983. *Ultima III: Exodus*. Game [Apple II]. (August 23, 1983). Origin Systems, Austin, Texas, U.S.

[17] Henry Gleitman, Daniel Reisberg and James Gross. 2007. Chapter 12 Social cognition and emotion In *Psychology*, H. Gleitman, D. Reisberg and J. Gross (Eds.). W.W. Norton & Company, Inc., New York, 436-477.

[18] Henry Gleitman, Daniel Reisberg and James Gross. 2007. Chapter 17 Treatment of mental disorders In *Psychology*, H. Gleitman, D. Reisberg and J. Gross (Eds.). 634-667.

[19] Isabela Granic, Adam Lobel and Rutger C. M. E. Engels. 2014. The benefits of playing video games. *American Psychologist*. 69, 1: 66-78. http://dx.doi.org/10.1037/a0034857

[20] Amelia Gulliver, Kathleen M. Griffiths and Helen Christensen. 2010. Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC Psychiatry*. 10, 113. http://dx.doi.org/10.1186/1471-244x-10-113

[21] Adele M. Hayes. 2015. Facilitating emotional processing in depression: the application of exposure principles. *Current Opinion in Psychology*. 4, 61-66. http://dx.doi.org/10.1016/j.copsyc.2015.03.032

[22] Lori M. Hilt, Katie A. McLaughlin and Susan Nolen-Hoeksem. 2010. Examination of the response styles theory in a community sample of young adolescents. *Journal of Abnormal Child Psychology*. 38, 4: 545-556. http://dx.doi.org/10.1007/s10802-009-9384-3

[23] Maryalice Jordan-Marsh, Marientina Gotsis, Deborah A. Baron, Charles Kaplan, P.-J. Lee and Yasaman Hashemian. 2013. *Safety & effectiveness study for Helping our Heroes (HoH): an educational game developed by SoarTech (ClinicalTrials.gov identifier: NCT01807806)*. Los Angeles, CA.

[24] Mark R. Leary. 2001. Toward a conceptualization of interpersonal rejection In *Interpersonal Rejection*, M. R. Leary (Eds.). Oxford University Press, New York, 3-20.

[25] Gwen Littlewort, Marian Stewart Bartlett, Ian Fasel, Joshua Susskind and Javier Movellan. 2006. Dynamics of facial expression extracted automatically from video. *Image and Vision Computing*. 24, 615-625. http://dx.doi.org/10.1016/j.imavis.2005.09.011

[26] Emily G. Marston, Amanda Hare and Joseph P. Allen. 2010. Rejection sensitivity in late adolescence: social and emotional sequelae. *Journal of Research on Adolescence*. 20, 4: 959-982. http://dx.doi.org/10.1111/j.1532-7795.2010.00675.x

[27] Sally N. Merry, Karolina Stasiak, Matthew Sheperd, Chris Frampton, Theresa Fleming and Mathijs F. G. Lucassen. 2012. The effectiveness of SPARX, a computerised self help intervention for adolescents seeking help for depression: randomised controlled non-inferiority trial. *British Medical Journal*. 344, e2598. http://dx.doi.org/10.1136/bmj.e2598

[28] Anne Maria Möller-Leimkühler. 2002. Barriers to help-seeking by men: a review of sociocultural and clinical literature with particular reference to depression. *Journal of Affective Disorders*. 71, 1-3: 1-9. http://dx.doi.org/10.1016/S0165-0327(01)00379-2

[29] Marlou Poppelaars, Yuli R. Tak, Anna Lichtwarck-Aschoff, Rutger C. M. E. Engels, Adam Lobel, Sally N. Merry, Mathijs F. G. Lucassen and Isabela Granic. 2016. A randomized controlled trial comparing two cognitive-behavioral programs for adolescent girls with subclinical

depression: a schoolbased program (Op Volle Kracht) and a computerized program (SPARX). *Behaviour Research and Therapy*. 80, 33-42. http://dx.doi.org/10.1016/j.brat.2016.03.005

[30] Marlene J. Sandstrom, Antonius H. N. Cillessen and Abbey Eisenhower. 2003. Children's appraisal of peer rejection experiences: impact on social and emotional adjustment. *Social Development*. 12, 4: 530-550. http://dx.doi.org/10.1111/1467-9507.00247

[31] Brett E. Shelton. 2007. Designing Educational Games for Activity-Goal Alignment In *The Design and Use of Simulation Computer Games in Education*, B. E. S. D. A. Wiley (Eds.). Sense Publishers, Rotterdam, The Netherlands, 101-127.

[32] John R. Weisz, Sofie Kuppens, Mei Yi Ng, Dikla Eckshtain, Ana M. Ugueto, Rachel Vaughn-Coaxum, Amanda Jensen-Doss, Kristin M. Hawley, Lauren S. Krumholz Marchette, Brian C. Chu, V. Robin Weersing and Samantha R. Fordwood. 2017. What five decades of research tells us about the effects of youth psychological therapy: a multilevel meta-analysis and implications for science and practice. *American Psychologist*. 72, 2: 79-117. http://dx.doi.org/10.1037/a0040360

[33] Kipling D. Williams, Christopher Cheung, K. T. and W. Choi. 2000. Cyberostracism: effects of being ignored over the internet. *Journal of Personality and Social Psychology*. 79, 5: 748-762. http://dx.doi.org/10.1037//0022-3514.79.5.748