

The role of gaming in mental health

Mark Matthews and David Coyle

This article is a preprint. The full version is available as follows:

Matthews, M. & Coyle, D. (2010) The role of gaming in mental health. In *The Use of Technology in Mental Health: Applications, Ethics and Practice*. Anthony, K., Nagel, D.M. & Goss, S. pp134–142. Charles C Thomas Pub Ltd

1 Introduction

Many adolescents experience difficulties in engaging directly with traditional face-to-face therapeutic approaches (BMA, 2006). Recent research suggests that computer assisted mental health interventions may provide one potential way of working more successfully with adolescent clients. Research also suggests that the choice of technology is a key factor in the success of computer assisted interventions. For example it is suggested that *“a quality therapeutic process will actively engage the client’s participation, by involving their interests, strengths and ideas. Similarly, technologies are most likely to prove effective if they are designed to be client-centred”* (Coyle, Doherty, Sharry, & Matthews, 2007).

Whilst much attention in recent years has focused on the negative effects of computer games, a review of literature and an initial pilot study (Coyle, Matthews, Sharry, Nisbet, & Doherty, 2005) has provided strong initial indications that appropriately designed games may have potential to assist in adolescent interventions. Therapeutic games offer the opportunity to engage with adolescents through a medium with which they are comfortable. A recent UK survey reported that 53% of eleven to fourteen year olds play games four times a week or more, and that 44% play for more than one hour at a time (McFarlane, Sparrowhawk, & Heald, 2002). Further surveys in the US and the UK indicate that under-16’s rank computer gaming as their number one entertainment form (Gentile & Walsh, 2002; Pratchett, 2005).

This chapter first reviews previous research on the use of computer games in therapeutic settings. The potential benefits of games are also discussed. For example are games just a useful icebreaker, or can they then assist in other ways? Can they, for instance, assist in improving client engagement and the client-therapist relationship? By way of example we discuss *Personal Investigator*, a game recently developed for use in professional therapeutic practice. The chapter ends by taking a more speculative perspective on future directions for therapeutic gaming.

2 Ethical concerns

Before discussing ongoing research on therapeutic computer games, it is important to note that many MHC (Mental Health Care) researchers and practitioners are sceptical of the benefits, not just of games, but also technology in general. (Caspar, 2004) cites fears such as damage to the client-therapist relationship, ethical and security issues and worries that the current skills of therapists may become obsolete. Others fear that technology in and of itself has a damaging impact on the mental health of society, suggesting dangers such as increased isolation due to excessive time spent online.

In the specific case of computer games, much literature in recent years has focused on the negative effects of computer games. Risks such as addiction and increased aggressiveness and violence have been suggested (Gentile, Lynch, Linder, & Walsh, 2004). However while these fears must be considered, there are strong initial indications that the potential of therapeutic games may be substantial, and MHC researchers have begun to show an increased interest in the potential of suitably designed games (M. D. Griffiths, 2004; Parkin, 2000). It is also important to note that technology based interventions do not generally seek to replace existing methods. Rather they seek to offer new, and complementary options. Rather than detracting from critical therapeutic factors such as the client therapist relationship, games, when appropriately designed and used in appropriate circumstances, may offer a way of improving such factors.

3 Previous uses of computer games

Research on computer games in MHC settings has been limited. Some early research was conducted in the 1980s and early 1990s. Several researchers from a psychology/psychotherapy background developed their own games (Allen, 1984; Clark & Schoech, 1984; M. Griffiths, 1997; Oakley, 1994; Resnick & Sherer, 1994), while others examined the potential of off-the-shelf commercial games (Allen, 1984; Gardner, 1991). Increases in the costs, development time and technical expertise involved in developing modern games were key factors in the decline of this work. Research on the use of biofeedback-based games for the treatment of anxiety disorders and attention problems has received more recent attention (Pope & Paison, 2001). Suggested benefits from research into therapeutic computer games include:

- Games can successfully engage clients previously difficult to engage by other means. Clients were more cooperative with their therapists, with whom they developed effective therapeutic relationships. Session attendance rates greatly improved and the stigma felt in attending therapy was reduced (Allen, 1984; Clark et al., 1984).
- Games can help adolescents develop “more self-confidence, a sense of mastery, more willingness to accept responsibility” (Allen, 1984).
- Games can help children displace their aggression, develop problem solving skills and deal with negative and positive outcomes in the game (Gardner, 1991).

It is important to note that these findings must be viewed with a large degree of caution. Research in the area has been largely uncoordinated, and the difficulties surrounding clinical evaluations mean that trials of typically had limited user numbers. Substantially more work has been conducted in educational and other health care areas, with suggested benefits including increased motivation, increased self-esteem, increased health care knowledge and self efficacy, improved problem solving and discussion skills and improved storytelling skills (Bers, 2001; Gee, 2003; HopeLab, 2006). The degree to which such benefits are transferable to MHC settings remains an open one. The next section highlights one study new study in the MHC area.

4 Personal Investigator

PI is a 3D computer game which incorporates a goal-oriented strengths-based intervention model, Solution Focused Therapy (SFT). PI represents the first time this intervention approach has been integrated into a 3D game. The game uses a detective metaphor. Players visit the Detective Academy and play the role of a *personal*

investigator' hunting for the clues that will help them solve a personal problem. Players are given a detective notebook, where they are asked to record their thoughts and ideas. Five solution focused conversational strategies are mapped into five distinct game areas. In each area the player meets a master detective who talks with the player in an informal way and asks the player to answer questions in their notebook, table 1. Three of the dialogues incorporate videos of adolescents describing how they overcame personal problems using the strategies described. To complete the game and graduate the academy players must complete the tasks set by each master detective. Upon completing the game, they receive a printout of their notebook. Further details of PI can be found in (Coyle et al., 2005; Matthews, Coyle, & Anthony, 2006).

Table 1 - A brief summary of the dialogues and characters used in Personal Investigator.

STF strategy	Game character	Brief description
Setting Goals	The Goal Setter, based on Professor Charles Xavier from the X-Men movies.	This is the first character the players meet. The character helps clients to identify a problem in their lives and then convert that problem into a goal they want to achieve. Achieving this goal becomes the objective of the game.
Recognising Exceptions	Damini the forensic scientist, who specialises in spotting hidden evidence.	Exceptions are times when the client's problem is not present or is less acute. SFT helps clients recognise and explore these times with a view to repeating them more often.
Coping:	Inspector Cluso, a younger version of Inspector Colombo from the US TV series.	SFT helps clients to recognise ways they currently have of dealing with their problem, suggests positive alternatives and explores how they have successfully overcome past problems.
Identifying resources:	Detective Spade, a New York policeman who likes to watch old detective programs on television.	SFT helps clients identify resources, in particular support from family and friends, which they can draw upon. Resources refer also to the client's own strengths i.e. things they are good at.
The Miracle Question:	Siobhán, an artist, who helps people visualise their life without their current problems.	"Imagine you woke up tomorrow and the problem was solved, how would your life be different?" By imagining a future without their problems, clients are motivated to seek a solution.
Wrap-up Dialogue	The Goal Setter.	Having met all the other characters, the player meets the Goal Setter again. This character congratulates the player and shows them how to print their game notebook.

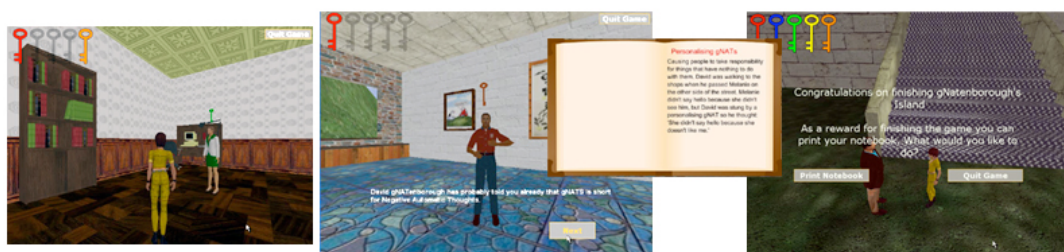


Figure 1 : screenshots from Personal Investigator

4.1 Using Personal Investigator in clinical sessions

In clinical sessions the therapist and adolescent sit together at a computer, but the adolescent has full control of the keyboard and mouse. The adolescent chooses a username and logs into the game. The game creates an

individual account for each adolescent, automatically saving their progress and allowing them to return to saved games at a later date. The adolescent has full control over the game; they play at their own pace and choose their own path through the world. Throughout the game the therapist is a partner in the exploration of the game world and is no longer an interlocutor. If the adolescent asks for help, the therapist can elaborate on the subjects brought up by the game or answer more specific questions from the adolescent in relation to their situation.

5 Overview of evaluation results

A multi-site evaluation has been conducted in which 8 therapists used PI with a total of 22 adolescent clients. Approximately equal numbers of male and female clients, experiencing a broad range of difficulties and ranging in age from 10 to 16, used the game. A brief overview of this study is now presented.

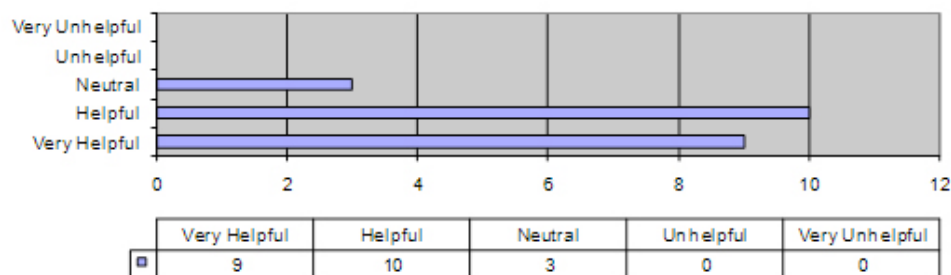


Figure 2 – helpfulness ratings for Personal Investigator on a client-by-client basis.

Firstly fig 2 summarises therapists’ helpfulness ratings for PI on a client-by-client basis. Table 2 summarises therapists’ responses to a series of statements about PI. Statements one to four addressed therapists’ overall impressions. Each therapist agreed that PI had a positive impact in the majority of sessions in which it was used. Each also agreed that PI complemented their traditional ways of working with clients and all but one stated that they would like to continue using PI with further clients.

Table 2 – mental health care professionals’ overall impression ratings for Personal Investigator

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Overall impressions					
1. Overall PI had a positive impact in the majority of sessions in which it was used.	4	4	0	0	0
2. I felt comfortable using PI with clients.	3	3	2	0	0
3. PI complemented my traditional ways of working with clients.	4	3	1	0	0
4. I would like to continue using PI with further clients.	4	3	0	1	0
Specific therapeutic issues					
5. PI is a useful icebreaker.	2	6	0	0	0
6. PI is a useful icebreaker, but it is also more than that.	3	5	0	0	0
7. Playing PI can have a positive impact on the client-therapist relationship.	2	6	0	0	0
8. Playing PI can help in structuring sessions with young	2	6	0	0	0

people.					
9. PI is a distraction from beneficial therapeutic processes.	0	0	1	5	2
10. Playing PI can make it easier to engage constructively with adolescent clients.	3	3	2	0	0
11. Young people playing PI experienced a greater sense of ownership of the therapeutic process than is usually the case.	1	3	4	0	0

Statements five to eleven address more specific issues. As can be seen all eight therapists agreed that while PI is a useful icebreaker, it is also more than this. It can help with the client-therapist relationship and can help in structuring sessions. All but one therapist disagreed with the statement that PI is a distraction for beneficial therapeutic processes. Whilst no negative ratings were given, therapists expressed a greater degree of ambivalence about statements on engagement and ownership (statements 10 and 11). In many cases therapists explained their neutral responses by stating that they had insufficient experience of using PI to give more definitive opinions.

5.1 Increasing the effectiveness of Personal Investigator

Alongside acknowledging therapists largely positive opinions of PI, it is important to note several concerns raised by the group. These concerns focused on three main issues:

1. The difficulties some clients experienced reading and writing in the game notebook.
2. Concerns that some adolescents engage with the game but do not engage sufficiently with the therapeutic issues raised in the game.
3. Concerns that some adolescents engage with the game but do not engage sufficiently with the therapist, or use the game as another way of avoiding discussion with the therapist.

The three client cases in which therapist gave PI neutral helpfulness ratings were directly related to these issues. For example in one case the therapist stated:

“Young person is very troubled and currently not engaging with workers. PI did help get her to focus on some issues and take time to do so, but she chose to try to exclude me, interacting only with the computer. Subsequent discussions with her of her experience of this was also helpful to a certain extent. Difficult to assess impact at this stage. Need to do a lot more work with PI (and with this particular young person).”

In collaboration with the therapists who have used PI, steps are now being taken to address the identified concerns. For example, new games are now being developed which include questions for the therapist as well as the client. At the beginning of such games the client is required to choose a co-player (the therapist). Characters in the game then address some of their questions to this co-player.

A key finding to emerge from the evaluation of PI is the importance of the therapist’s role in using the game effectively. The real benefit of games such as PI is that they can help to raise issues in a client-centred way and create a context for more detailed discussions between by the therapist and client. Games can serve as a therapeutic tool, but the work jointly undertaken by the therapist and client remains critical. This factor is

highlighted in the rules one therapist has established for using PI with clients. The therapist describes the initial discussion she has with clients prior to using PI as follows:

“Prior to commencing the game we have a discussion about the game - and I gauge the interest level. If they are very interested I outline some important things to remember. I describe it as a thinking game. I talk about needing to take time to think before we write down our answers [in the game notebook]. So rule no 1 is the therapist or child reads out the question - and we have a talk about it before we write anything down. Once we have decided we type it, and only then press next. Rule 2 - if we are going too fast and not taking our time we may need to stop the game completely and work from a page instead. (This is a good strategy for assisting in patience in the game).”

5.2 Case study

In order to provide a more detailed account of one therapists' experience of using PI a case study is now presented. This case study describes the opinions of the therapist who has used PI most often. He states:

“The notable benefit has to be removing the impact of face to face grilling, which for young people who want to oppose adults has to be a plus”

In all, this therapist used PI with seven clients and stated that the game was ‘helpful’ in two cases and ‘very helpful’ in five. The therapist strongly agreed with statements on PI benefits as an icebreaker, as an aid to the therapeutic relationship and client engagement. He is also the therapist who expressed the strongest opinions of PI’s ability to help clients take ownership of the therapeutic process:

“The cognitive goal of PI is to enable and encourage the client towards ownership of the problem. Talking therapy alone can take up to 3 or 4 times longer to reach the same small part of understanding that PI can bring out in 1 session.”

One of the issues also addressed in feedback is the importance of the therapist’s role in using PI effectively. For example he states:

“Skilful use of the introduction of PI into a session just makes for better and better interventions that students/clients can handle at their own pace. Any tool in a therapists ‘toolkit’ that can open a dialogue of any sort can only be of benefit if used with skill”

The therapist describes the way in which he used PI to complement some of his other day-to-day techniques. For example, if he feels that a client has a moment of significant understanding while playing PI, he will move away from the computer and address this issue in more detail:

“Playing PI created some nice ‘Aha moments’... Moving away from the PC at these points, using reflection flowcharts, mind maps etc helped to solidify the new learning and turn what was once a block or problem into a manageable challenge that can be dealt with one piece at a time.”

What is significant here is that this therapist has integrated the game with his traditional working methods and has begun to use PI as a context for, and complement to, other forms of therapeutic work. As such PI has become part of this therapist’s overall therapeutic toolkit, rather than a standalone game used in isolation.

6 The Future

Whilst more detailed studies are now required to confirm initial findings, there are strong initial grounds to suggest that games such as PI offer therapeutic benefits. Alongside use in clinical sessions – and as well as acting as an icebreaker, helping with the client-therapist relationship and with client engagement – there is the potential for games to impact adolescent mental health in many new ways. Between sessions games may help to encourage clients to complete homework activities and reflect on issues raised in sessions. For example, the authors of this chapter recently completed an initial version of a game called ‘Positive Thoughts’, which clients will use on their mobile phones between sessions. It is designed to help clients to remember and reinforcing positive motivational statements, previously agreed with a therapist in session. Games may also provide a way to the reduction the stigma often associated with initially accessing mental health information and services. Reach Out Central (ROC) is an example of one such game. Recently launched, it is an online game incorporating a CBT approach, designed for young people aged 16 to 25. It allows players to play through life situations and is designed to help develop a range of skills from general life management skills to dealing with negative feelings or depression.

In the near future, alongside using existing games, it is likely that greater opportunities will exist for MHC professionals to become more directly involved in designing their own therapeutic games. For example Playwrite is a tool, again developed by the authors of this chapter, which allows therapists to easily create character-based games similar to PI. Using PlayWrite it is possible to tailor games to suit particular therapeutic approaches, particular mental health difficulties, or the needs of specific groups or individual clients. During an initial study a group of MHC professionals used PlayWrite to create 10 new games (Coyle, Sharry, & Doherty, 2007).

In the long term, research in this area should explore the potential of new and diverse forms of computer games, the merits of which have begun to be seen in other areas. For example, the recently launched Nintendo Wii console allows for new forms of physical interaction with games. In West Virginia 103 high schools incorporated computer games with a physical element to them (Exergames) into PE classes, to help tackle obesity by offering students an alternative to traditional PE activities. Perhaps in the future Exergames could assist in the treatment of depression? A new generation of daily training games (often called ‘brain games’), designed to help increase a wide variety of mental skills, have also become popular. The most successful of these games is the Brain Age series (Brain Training in Europe) based on the research of Dr. Ryuta Kawashima. Mind Habits is another online ‘brain game’ based on social intelligence research at McGill University. It is designed to give you a rating on how stressed or focused you are and to help you improve this rating. These games are part of a genre called casual games, because you can pick them and put them down easily. They do not involve a large time commitment.

While there have been few such games targeted at mental health, it is not difficult to imagine how similar games might have impact in mental health. What is now needed is a greater concerted exploration of the potential of various computer games in mental health, in order to identify their strengths and weaknesses and the areas where they can have the most beneficial effects.

7 References

- Allen, D. H. (1984). The use of Computer Fantasy Games in Child Therapy. In M. D. Schwartz (Ed.), *Using Computers in Clinical Practice: Psychotherapy and Mental Health Applications* (pp. 329-334). New York, N.Y.: Haworth Press.
- Bers, M. (2001). Identity Construction Environments: Developing Personal and Moral Values Through the Design of a Virtual City. *The Journal of the Learning Sciences*, 10(4), 365-415.
- BMA. (2006). *Child and adolescent mental health – a guide for healthcare professionals*, (British Library No. ISBN: 1-905545-09-6), London: Board of Science of the British Medical Association, Retrieved August 2006, from <http://www.bma.org.uk/ap.nsf/Content/Childadolescentmentalhealth>.
- Caspar, F. (2004). Technological Developments and Applications in Clinical Psychology: Introduction. *Journal of Clinical Psychiatry*, 60(3), 221-238.
- Clark, B., & Schoech, D. (1984). A Computer-Assisted Therapeutic Game for Adolescents: Initial Development and Comments. In M. D. Schwartz (Ed.), *Using Computers in Clinical Practice: Psychotherapy and Mental Health Applications* (pp. 335-353). New York, N.Y.: Haworth Press.
- Coyle, D., Doherty, G., Sharry, J., & Matthews, M. (2007). Computers in Talk-Based Mental Health Care. *Interacting with Computers*, 19(4), 545-562. Available at: <http://dx.doi.org/510.1016/j.intcom.2007.1002.1001>.
- Coyle, D., Matthews, M., Sharry, J., Nisbet, A., & Doherty, G. (2005). Personal Investigator: A Therapeutic 3D Game for Adolescent Psychotherapy. *International Journal of Interactive Technology and Smart Education*, 2, 73-88.
- Coyle, D., Sharry, J., & Doherty, G. (2007). *PlayWrite - Publishing and playing 3D computer games in adolescent mental health interventions*. Proceedings of XXIV World Congress - International Association for Suicide Prevention, 28 August - 1 September 2007, Killarney, Ireland.
- Gardner, J. E. (1991). Can the Mario Bros. help? Nintendo Games as an Adjunct in Psychotherapy with Children. *Psychotherapy*, 28, 667-670.
- Gee, J. P. (2003). *What Video Games Have To Teach Us About Learning and Literacy*: Palgrave Macmillan.
- Gentile, D. A., Lynch, P. J., Linder, J. R., & Walsh, D. A. (2004). The effects of violent video game habits on adolescent hostility, aggressive behaviors, and school performance. *Journal of Adolescence* 27 5–22.
- Gentile, D. A., & Walsh, D. A. (2002). A normative study of family media habits. *Journal of Applied Developmental Psychology*, 23, 157–178.
- Griffiths, M. (1997). Video Games and Clinical Practice: Issues, Uses and Treatments. *British Journal of Clinical Psychology*, 36, 639-641.
- Griffiths, M. D. (2004). The Therapeutic Value of Videogames. In J. Goldstein & J. Raessens (Eds.), *Handbook of Computer Game Studies* (pp. 161-173). Boston, US: MIT Press.
- HopeLab. (2006). Re-Mission™ Outcomes Study: A Research Trial of a Video Game Shows Improvement in Health-Related Outcomes for Young People with Cancer. Retrieved April 2006, from: <http://www.hopelab.org/docs/Outcomes%20Study.pdf>
- Matthews, M., Coyle, D., & Anthony, K. (2006). Personal Investigator. *Therapy Today: The Magazine for Counselling and Psychotherapy Professionals*, 17(7), 30-33.
- McFarlane, A., Sparrowhawk, A., & Heald, Y. (2002). *Report on Educational Use of Games: Teachers Evaluating Educational Multimedia Report*: TEEM, Retrieved, from: <http://www.teem.org.uk/publications/>.
- Oakley, C. (1994). SMACK: A Computer Driven Game for at-risk Teens. *Computers in Human Services*, 11(1), 97-99.
- Parkin, A. (2000). Computers in clinical practice: applying experience from child psychiatry. *British Medical Journal*, 321, 615-618.
- Pope, A. T., & Paison, O. S. (2001). *Helping Video Games 'Rewire Our Minds'*. Proceedings of Playing by the Rules Conference, Oct 26.-27, Chicago, IL.
- Pratchett, R. (2005). *Gamers in the UK: Digital play, digital lifestyles*, (White Paper): BBC, Retrieved, from http://crystaltips.typepad.com/wonderland/files/bbc_uk_games_research_2005.pdf.
- Resnick, H., & Sherer, M. (1994). Computer Games in the Human Services - A Review. *Computers in Human Services*, 11(1/2), 17-29.