

Positive Effects of Entertainment Technology

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Literature Search [[PDF](#)]

keywords (context specific in different combinations):

‘academic achievement, altruism, ANOVA, attainment, children, computer, education, edutainment, entertainment, gamble, game, ICT, meta analysis, PDF, performance, pet, positive effect, religion, robot, school record, review, survey, technology, therapy, user study, video’

search engines/databases:

‘ACM Digital Library, IEEE Computer Society Digital Library, Internet via Google, ISI web of science, Kluwer online, LookSmart, Prentice Hall, Science Direct, Scirus for scientific information, SpringerLink, Wiley interScience’

results:

393 online available publications (e.g. DOC, RTF, PDF or HTML format)
meta review (N=34), meta analysis (N=13), literature review (N=38), literature survey (N=36), empirical study (N=91), survey study (N=44), design study (N=91), any other document (N=46)

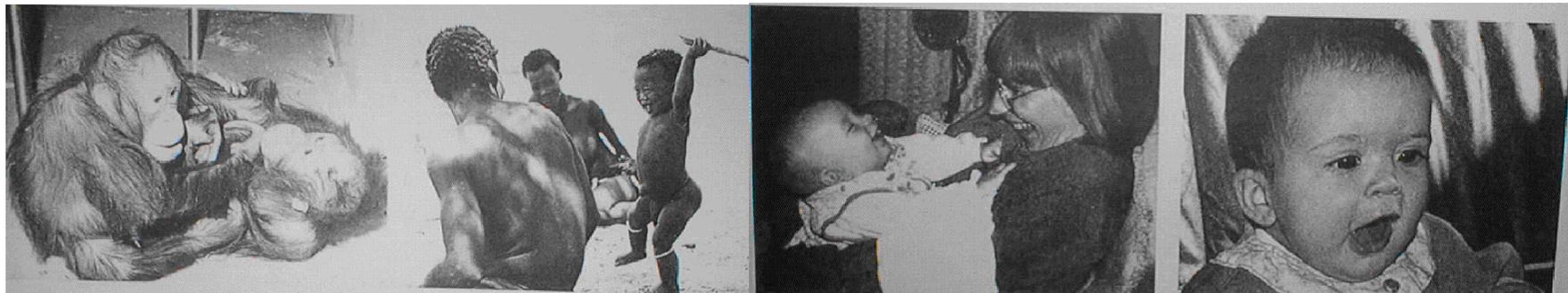
Play

Humans who have been allowed and encouraged to play stand the best chance of becoming healthy, happy and productive members of society.

Some positive aspects of playing can promote literacy, thinking, reflecting and creativity.

Although children do not play in order to learn, they learn from play.

Play is significantly related to: creative problem-solving, co-operative behaviour, logical thinking, IQ scores, peer group popularity.



General development

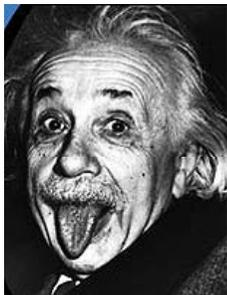
More than 40 empirical studies concludes that play enhances early development by at least **33%**!

Play with games and toys are an important part of child development to acquire a variety of skills for life, such as motor-coordination, social and cognitive skills.

Players can progress from newcomer to expert, in particular in belonging to a **social** system.



Jeffrey Goldstein



"True learning is experience;
everything else is just information."



Teaching

ICT can have positive effects on pupils' learning of different **concepts and skills in mathematics** at both primary and secondary school levels.

Different uses of ICT have contributed to some improvements in achievement in **English**, but the results are very inconsistent and restricted by the rate of ICT use and access in schools.

ICT has had a positive effect on many areas of **science attainment**.

Innovative and challenging uses of ICT can improve **pupils' data-handling skills**, their ability to **construct complex models** and their understanding of the value of different ICT systems.

Not only was ICT perceived to encourage pupils to become more focused on the task, but it was also seen by some teachers to enhance both the performance and cognitive functioning of those who had hitherto been on the margins of classroom activity, or traditionally had performed poorly.

Academic performance

“The Fifth Dimension” 5D project in USA, Australia
Edutainment technology for educational purposes

Results:

- advances in reading
- advances in mathematics
- advances in computer knowledge,
- advances in following directions,
- advances in grammar
- advances in school achievement tests

Other studies:

Gaming in 2D or 3D applications contributes positively to visual-spatial skills



Collaboration

[122 empirical studies on the effect of competition on result of players' improvement are reviewed]

65 studies found that co-operation tasks promotes higher achievement than competitive tasks, 8 found the reverse, and 36 found no statistically significant difference

108 studies found that co-operation tasks promoted higher achievement than individualistic tasks, 6 found the reverse, and 42 found no difference



Prosocial Behaviour

Prosocial content does have positive effects:

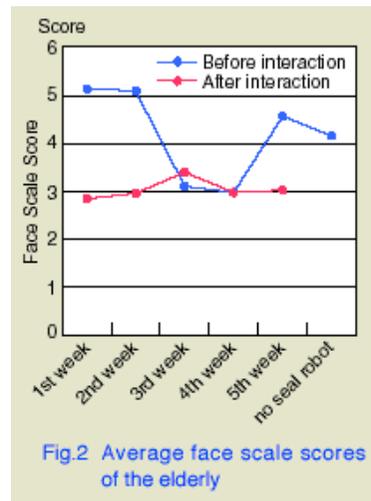
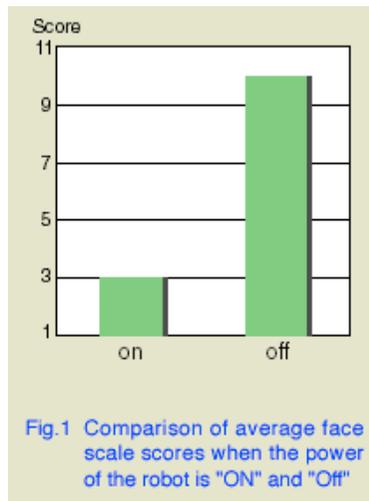
1. Children exposed to prosocial content have more positive social interactions, show more altruistic behavior and self-control, and have less stereotyped views of others.
2. The strongest effects of prosocial content were found for measures of altruism.
3. Relying on children's ability to pick out the moral messages from programs which feature violence or conflict and some prosocial resolution may backfire, leading to more aggression than merely showing the conflict.
4. Effects of prosocial content are often strongest when viewing is combined with discussion.
5. Effects of prosocial content were strongest for pre-school and grade-school children, diminishing in adolescence.
6. Effects are somewhat stronger for girls than for boys.



Health Care

‘Mental commit’ robot pet Paro in a hospital environment showed promising results: the mood of children and elderly patients could be positively changed.

Positive influence of a computer game on 2000 children for nutritional teaching: “In conclusion, it is possible for children to learn good eating habits by playing computer games”



Paro at the Science Museum in London, UK



Paro surrounded by children at a pediatric ward



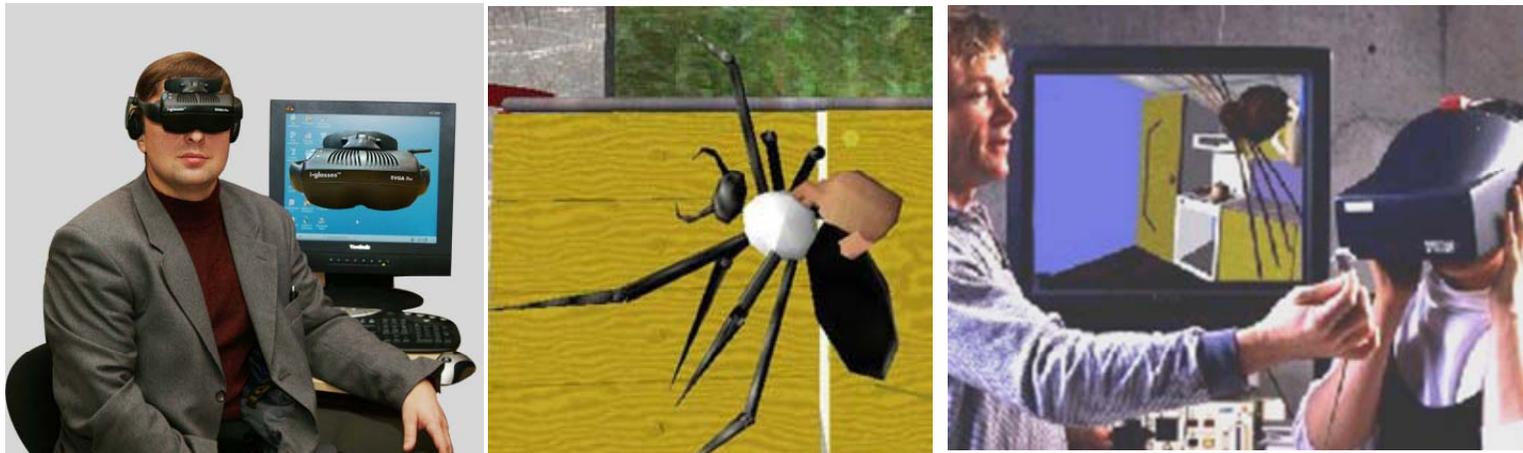
Hyperactivity

Recent research suggests that active play may reduce impulsivity thereby helping children with attention deficit and hyperactivity disorder (ADHD)



Phobia

Using a low-cost commercial computer game VR application with head mounted display applied to phobic and non-phobic persons resulted in a sufficient amount of immersion and presence for the phobic patients to be useful for therapeutic settings.



Three main conclusions can be drawn:

- (1) not the technology in its self, but
the **content** of the product or service really matters
- (2) the **context of use** is almost as important as the content
- (3) If the content and the context of use is properly designed,
positive effects on the users can be achieved

Thank you for your attention.