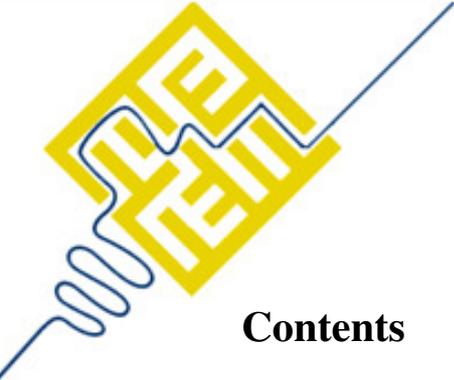


Games and evidence

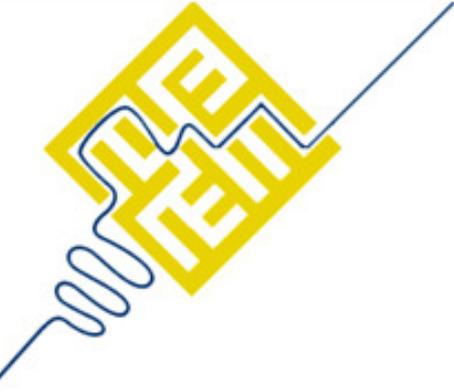
(Part 1 – Market, prevalence and academic evidence)

by Donald Clark



Contents

What's in a game?	3
The 'Definition' game	3
Serious Games	4
Games, simulations and 3D worlds	4
Scope of evidence	5
Market evidence	6
Analysts	6
Drivers	6
Market success	7
Prevalence of play	8
Playland	8
Play as sport	9
Play as gam(bl)ing	10
Play at home	11
Play and sex	11
Play at work	12
Play and technology	12
Academic evidence	15
Games and civilisation	15
Games and postmoderns	17
Games as theatre	17
Game theory	18
Evolutionary psychology and games	18
Games and narcissism	19
Conclusion	20
Bibliography	21



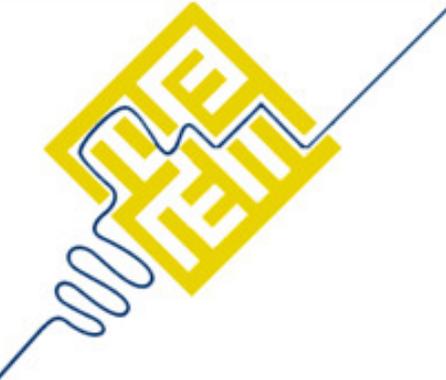
What's in a game?

The 'Definition' game

Play and games have received academic respectability in the 20th century. Ludwig Wittgenstein, possibly the greatest 20th century philosopher, used the diversity of 'games' (the German word *Spiel* has an even broader meaning) as a metaphor for examining language and the limits of thought. He asked us to think of the word 'game' and try to define it. No matter how hard we try, there will be examples that escape the definition. There is no one thing that is common to all games. Take ball games; some, like football and tennis have complex rules, others such as throwing a ball in the air have no rules. Some games are competitive, some are not. Some games have a goal, some do not. Games don't always involve rules, competition or even fun. His point was not that the word game had no meaning, only that it would be wrong to rely on its dictionary definition. For Wittgenstein, meaning is use and the word 'game' is used in a wide variety of contexts to mean related but different things. Games like language, for Wittgenstein, are a complex network of similarities, "games form a family the members of which have family likenesses." Language games became a major feature of his philosophy and now underlie many theories of ethics, aesthetics and other areas of philosophical enquiry.

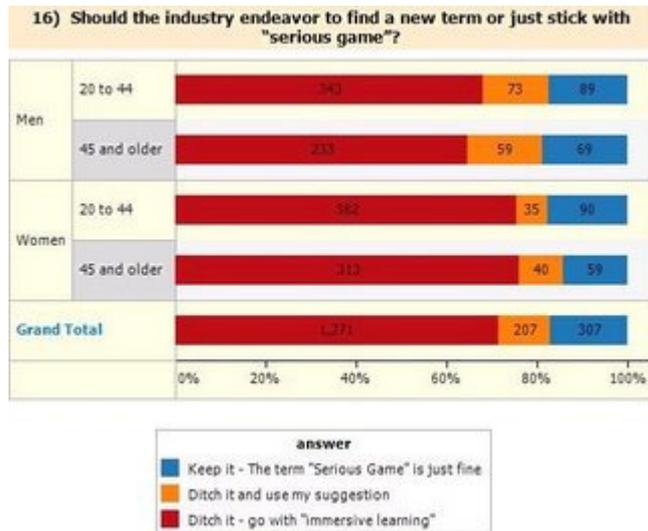
Pennsylvania educationalist Brian Sutton-Smith also sees the 'ambiguity' of play as something that will always escape quantification and definition (Sutton-Smith, 1997). His detailed study of theories of play, *The Ambiguity of Play*, starts with the statement, "We all play occasionally, and we all know what playing feels like. But when it comes to making theoretical statements about what play is, we fall into silliness." He calls on William Empson's *Seven Facets of Ambiguity* (1955), applies them to 'play', and shows, like Wittgenstein, that the whole game of definition is elusive. He does, however, identify a schema of 'play; mind or subjective play, solitary play, playful behaviours, informal social play, vicarious audience play, performance play celebrations and festivals, contests (games and sports), risky or deep play and sees feedback as a key component of human play.

What these definitions of play and games reveal, is the difficulty of the task. We know play and games when we see them, but they turn out to be beyond simple definition, while being culturally universal and commonplace. This game of definition is being played out again in conferences and blogs around the term 'Serious games'. In practice games are a major cultural force and the inexorable rise of computer games has fuelled interest in their use for learning. The dictionary definitions are almost irrelevant, except as exercises in branding.



Serious Games

The problem is well illustrated with the phrase 'Serious Games'. There is a clear problem with both words, but especially the term 'serious', as uncovered by this e-learning Guild survey.



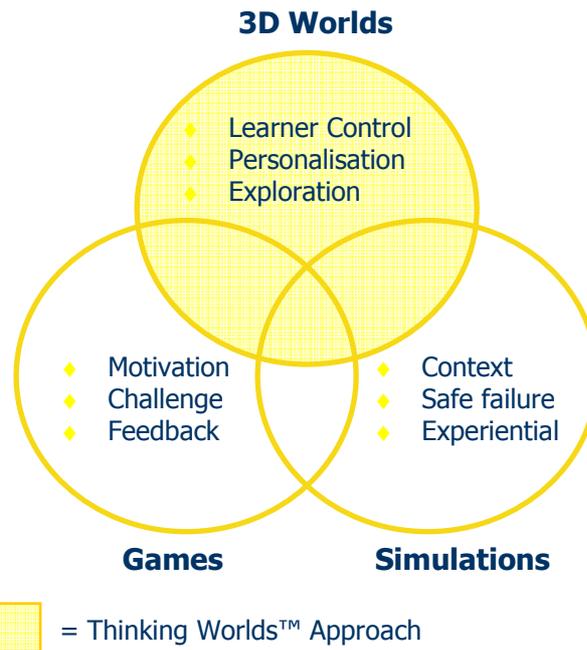
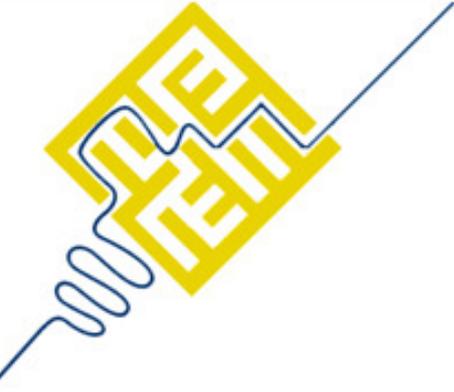
Other suggestions have been simply games, simulations, practiceware, virtual experiences, social impact games, game-based learning and immersive learning simulations.

As the 'Serious Games' industry goes through the usual search for dictionary definitions they could well settle for the above advice, and accept that meaning is use, and that the uses have and will change. The words 'game' has already gone through some semantic shift and will continue to do so. We simply need to lighten up on the idea that there even exists a definitive dictionary definition. It is what it is and will be what it will be.

Games, simulations and 3D worlds

Our assumption in this paper is that games cover a vast array of offline and online activities. It is useful to reflect on the general cultural characteristics of play and games as this is the deep driver that fuels human interest. In online games we must also recognize the sheer variety of games from simple scored quizzes through to complete virtual worlds with millions of online players.

We have a particular interest in '3D world' games that include elements of both 'games' and 'simulations'.



This is the model we will be using. It looks at evidence for 3D worlds in terms of games and simulations. We will try to focus on the delivery of performance simulations within engaging 3D worlds to improve learner motivation and skills. As you can see this encompasses a number of major learner attributes.

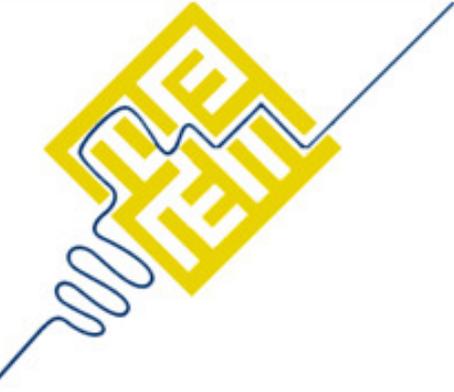
Scope of evidence

This is the first of three papers, presenting evidence for the use of games in learning. In this paper, we cover:

1. Market evidence
2. Prevalence of play
3. Academic history

In the next two papers we look at the psychology of learning and games and in the final paper empirical evidence that games can be used effectively for a range of learning, using actual examples

It is hoped that our approach to 'Serious Games' can be built on the solid foundations of serious reflection and research.



Market evidence

Analysts

Analysts predict exponential growth in the use of games and simulations technology across the corporate and government training sectors. Gartner predicts 80% likelihood, that the majority of corporate e-learning projects will include games by 2011.

The interest in using games and simulations has increased rapidly over the past 5 years. This has seen the emergence of the term “Serious Games”. Wikipedia describes these as “*software applications developed with game technology and game design principles for a primary purpose other than pure entertainment*”.

Gartner suggests the vast majority of corporate learning solutions will have games as a central element by 2011². Gartner suggests that this is likely as a result of the level of interactivity they can deliver, the improved engagement they can capture and the risk free learning that is possible.

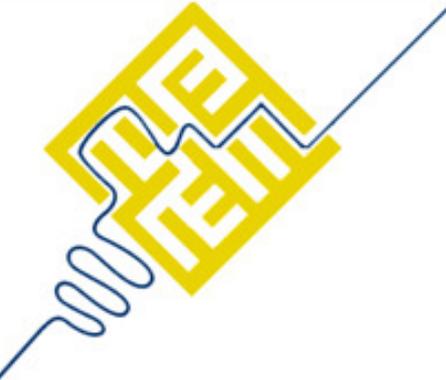
In Europe the “Apply Group” recently polled the industry and their potential clients³ and made similar predictions for the growth in use of games and simulations in learning. Two thirds of respondents predicted mainstream adoption of a “serious games” approach. The client responses alone would equate to over 25% of all global fortune 500 companies having this strategy embedded by 2012.

Drivers

The major drivers of this interest in games and simulations for learning are three fold:

- sheer numbers of “disappointed, disillusioned and disappeared learners” that exist at work and in education (Michael Barber – Government Policy unit⁴)
- need to dramatically improve workers skills to prosper in the global economy (Leitch Review⁵)
- realisation of the “motivational” power of games particularly to the digital native and media savvy generation

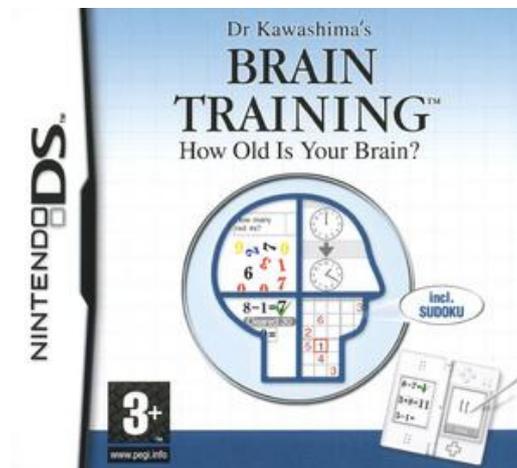
Marc Prensky calls the new generation of learners “digital natives” and explains how they are constantly immersed into a connected, digitally rich world⁶. This leaves them underwhelmed by traditional learning experiences both at school and in work. Prensky goes on to make some bold statements about how we need to



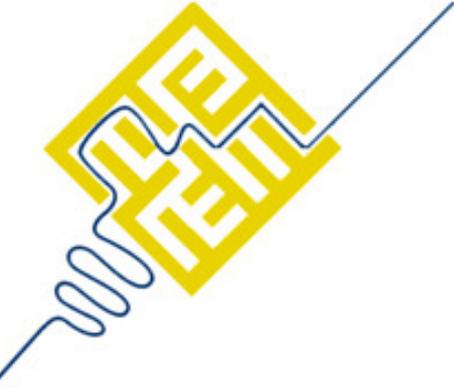
understand the desires, behaviours and even brain makeup of these younger people or risk losing their attention, motivation and skills.

Similarly a US report classifies an ever-expanding group of the working population as “*Media-Savvy*”. This includes individuals of all ages but points to similar characteristics to Prensky, in as much as they are digitally connected and motivated by highly interactive self-directed experiences. The report goes on to show how these media-savvy individuals are the most creative part of the workforce and yet the most disengaged learners when it comes to traditional methods. This trend is what Anderson calls “*the death of the compliant learner*”⁸.

Market success



With the success of new educational games like “Brain Training” on the Nintendo DS, it is no surprise that gaming technology is the first port of call for learning and development professionals who are seeking to engage the media savvy or digitally native workforce. Brain Training and Brain Age sold more than 8.5 million units in just 18 months⁹. This makes it one of the top three DS games of all time and shows the power of fusing learning goals with games’ approaches. As many commentators both in Europe and the US are saying, games and simulations have the power to re-engage learners, develop skill-sets that are needed and provide a highly productive learning platform for this changing workforce.



Prevalence of play

On a flight to the US I played a quiz game against other passengers on the plane. After every question we received a league table showing each player's position and seat number. It was fun, compulsive and mildly educational. It struck me that play had seeped into the most unlikely of places.

Play has indeed become a huge cultural trend as we head off into the 21st century. Play is everywhere. Its prevalence often goes unnoticed but it has crept into almost every aspect of our lives, through urban planning, newspapers, magazines, TV, movies, education, holidays, leisure and work.

Playland

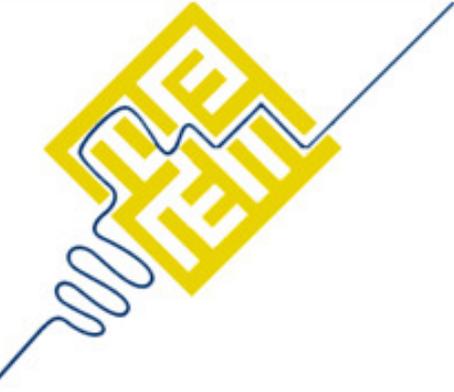
In every city or town 'play' takes up huge areas of land and inhabits many buildings with its; playing fields, school playgrounds, school sports' halls, public sports halls, parkland, arenas, stadia, swimming pools, tennis courts, bowling greens, skateboard parks, bike tracks, cricket grounds, theatres, cinemas, bowling alleys, snooker halls and pool rooms in bars. For gambling alone there's; casinos, bingo halls, arcades, dog tracks and betting shops, not counting the lottery outlets and gaming embedded in shops and other contexts. Play as dance means clubs, discos and dance venues in every large town. Amusement parks as large as towns exist throughout the land.

The countryside itself has become a huge playground, as agriculture now accounts for less and less actual land use. There's hunting (albeit restricted), which has always regarded the entire countryside as its playground. We have horse racing and bridle paths for horse riding, car racing tracks and the reuse of land for paintballing, gliding, canyoning and a myriad of other 'extreme' sports. Golf courses, the size of small farms, abound.

Hillwalking, the more arduous mountaineering, fell racing and orienteering, have taken over our mountain landscapes. Climate permitting, our mountains have become laced with slopes where skiing, snowboarding, tobogganing, ski-jumping, skating and other winter sports are played out. Even caves are not free from speleological play.

Our rivers, lakes and seas are rarely free from the sport of fishing. The water is full of yachts, motorboats, water-skis and canoes. On the surface we have waterskiing, windsurfing, parasailing and surfing. Down below, diving and snorkelling. On frozen water we'll skate and play curling.

Even the air is full of kites, model aircraft, gliders, paragliders, microlites and recreational aircraft. On our way to our holiday destinations, many with themed parks and beach sports, we'll have plenty of opportunities to 'play'. On the plane



we're likely to experience entertainment systems for long haul flights that include games for both kids and adults. Scratchcards have even become popular on short-haul economy flights.

In terms of space, nowhere is free from the potential invasion by players and play. Huge amounts of land, air and sea are devoted to play. We're even seeing a fledgling industry around taking play into space with expensive tourism into space. No place is entirely immune from our willing participation in play.

Play as sport

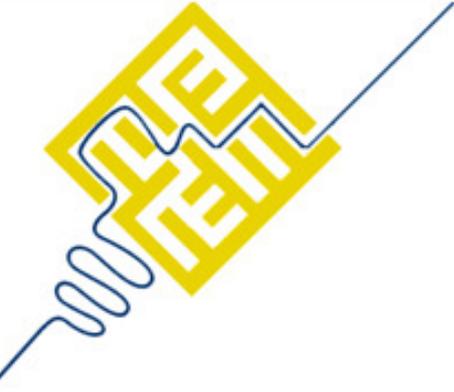
In terms of time, huge amounts are devoted by individuals to spectating and/or participating in play through sport. Locally sports teams reflect the organizations within society. They exist at the level of schools, pubs, companies and many other social groups. Towns have their 'teams', mainly football, but increasingly rugby, basketball, hockey and other rising sports. Nationally, season-driven sports are watched either live or on TV by millions. Entire TV channels are devoted to sports alone. Every four years the Olympics or World Cup captures the attention of almost the entire globe.

The breadth of available sports and participation in sports has grown enormously. Inside any local leisure centre you'll see badminton, swimming, volleyball, basketball, netball, tennis and martial arts (Karate, Tae kwon Do etc). Outside on formal playing areas we see football, rugby, hockey and tennis. The there's winter sports; skiing, snowboarding and so on, that have become more accessible to more people in the wake of cheap international travel.

Play in school is formalised through official play-times. In the playgrounds, you can still, despite the rise of computer games, see football, marbles, hopscotch and skipping, along with running around, capture and tag games. The yo-yo and other faddish toys occasionally make an appearance.

Then beyond the formal play areas, we see skateboarding colonise every patch of barren concrete with steps and rails, even shopping precincts. Skateboarders, such as Tony Hawk, are earning millions in rights to merchandise, games and TV programmes. There's been a renaissance of interest in cycling, whether BMX, mountain or road biking, has seen cyclists demand their own lanes and public parking spaces. So called 'Extreme sports'; bungee jumping, canyoning and so on, form the basis of a whole genre of travel and have their own niche TV channels and cultures.

Games and sports have long been seen as human universals. Every society has them. It should come as no surprise that many rule-based sports originated in our own rule-ridden country, England. (football, rugby, baseball and tennis). We even invented rules for many other sports, such as horseracing, rowing, boxing,



hockey, swimming and even skiing! Kate Fox in *Watching the English* sees the English obsession with sport as a way of supporting their otherwise weak sense of social participation, what she calls their 'dis-ease'.

The 'cricket test' was famously, and absurdly, touted by Norman Tebbit as a test of belonging to Britain. His point was interesting but hopelessly misguided. Sport does play a role in social cohesion. An interesting example is the roles of games and sports in that most English of social environments – the pub. Pub quizzes are everywhere as are gaming machines, dart boards, pool tables and bar games. In some areas you will still see dominoes and cards. Pubs often have their own football or cricket teams and it's the place of choice to view 'big' sports games. These are a means to an end that allow the members of this informal club to meet each other and have fun. Games enable social interaction.

Play as gam(bl)ing

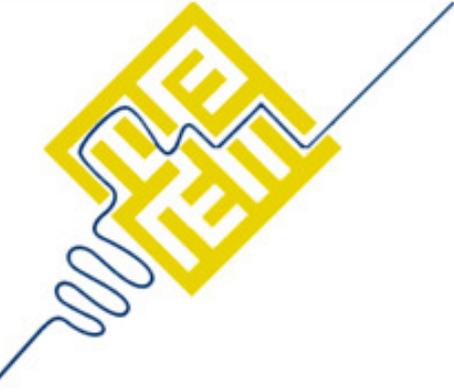
Lotteries have become a national obsession in many countries through national, and even international, lotteries. Gambling has thus become a politically acceptable alternative to straight taxation. These have become major economic forces, funding largely other forms of play, such as the performing arts and sports. It's an example of play spawning even more opportunities to play.

Every high street had its bookmakers with their open doors, plasma screens and invitations to bet on horse racing, football and anything else you can think of. Bingo halls pull in crowds every night of the week. Horse racing and dog tracks are going strong with floodlight evening meetings. Regular events throughout the year, from the Grand National to bets on a White Christmas, keep the urge to gamble going.

Casinos are fought over as agents of regeneration and now form key components of local economies. Bingo has become a favourite recreation for pensioners seeking company. No fete would be complete without a tombola or raffle.

A daily dose of sport and gambling comes in our daily and Sunday newspapers, with huge amounts of space devoted to sports and horse racing. Newspapers both tabloid and broadsheet use gaming extensively to sell their product. The tabloids have had spot the ball, bingo, scratchcards and almost every possible variation on gambling and competitions as major features of their marketing. No broadsheet would be complete without a crossword, often two (quick and difficult) along with puzzles, conundrums, number games, sudoku, chess puzzles, and bridge hands.

Puzzle books have become big business, especially in airports and railway stations as travel has boomed. We fill in our spare time with these pastimes.



Play at home

It's also crept into our homes through television, where we routinely vote, play and engage in competitions. Sport on TV has been a defining factor in the new multi-channel landscape with general and specific sports channels. Sky has raised the financial bar since it first paid £180 million to screen Premier league Football. There are now six packages for three years (from 2007). The prize is still the Premier League which is priced at £1.1 billion. Other channels, such as Sentana, BT and ITV are also bidding. Other rights, including mobile rights, television highlights packages, and overseas rights, are sold separately. Football clubs such as Manchester United, Rangers and Celtic, even have their own channels.

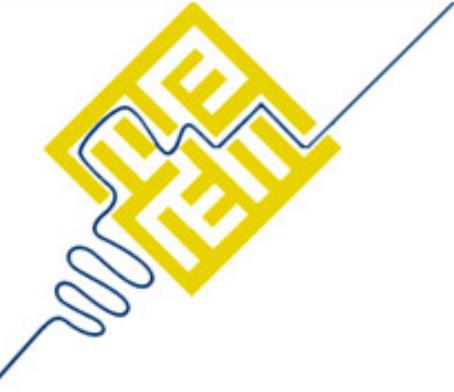
Games consoles and PCs now exist in the majority of homes. The perennial interest in chess, chequers and backgammon are topped up annually by the Christmas buying and playing of communal board games. Monopoly, Pictionary, Trivial Pursuit and a huge array of fiendishly clever game designs fill many a cupboard. Card games have only gained in popularity with the popularity of poker at an all time high. And if we can't use a physical game, we'll play charades or one of many other party games. We play at our many hobbies and we playful humans play with our playful pets, showing the basic animal nature of play. Pet shops are full of pet toys. This sometimes overreaches itself where even tropical fish and hamsters have their toys.

TV has become saturated by play and games brining them into the home. We have quiz programmes, sport and reality TV, all of which have competitive game format as their core appeal. 'Who Wants To Be a Millionaire?', 'The Weakest Link', 'Big Brother', 'Celebrity Big Brother', 'Pop Idol', 'The X factor', 'Castaway' and 'Survivor' have huge audiences. Games have literally changed the face of television. Their participative nature is in tune with a more contemporary, participative web-savvy culture.

On the bigger screen, from 'Tron' to 'Dodgeball' play and games have featured strongly in movies. The two-way crossover between computer games and movies has produced game films such as Tomb Raider and Doom. Fictional games such as Quiddich even pop up in Harry Potter movies. Even historical 'play' pops up in the massively successful 'Gladiator' and 'Apocolypto'.

Play and sex

We're a rather perverse species in that we have recreational sex largely in private, at home, few other species do. Jared Diamond in *Why sex is fun* explains why. Ovulation is hidden, unlike many other species where a red flushed derriere or other signal sparks off sex. The fact that it is unknown encourages partners to have sex at all times, in the hope of fertilization. It's a game, playing the odds.



The gamble also has the evolutionary side effect of encouraging bonding between the parents that their helpless offspring are looked after until their old enough to go off and look for sex themselves.

In a less obvious sense playfulness has coloured modern sexuality. Sexual play, through foreplay, sex toys, sex games and terms such as 'making a play for' and 'playing around' or 'playing the field' show a general playful attitude to recreational sex that has come to the fore since the sixties.

Play at work

International games, such as the World Cup, can have causal effects on productivity. Some workplaces arrange for matches to be seen during work hours, as they know that absenteeism will rise. In some economies the economic impact of this mass viewing has been measured. It has a specific effect in Asia during the 2002, when South-Korea, Japan and China has their opening matches.

But it is the slow creep of a culture of 'play in work' that has characterised the idea of outward bound team building, paintballing and a corporate entertainment industry centred around major sporting events, often to the financial and therefore physical exclusion of real fans. Competitive industry likes the idea of mutually admiring competitive sports events. They see themselves as being in the same 'game'.

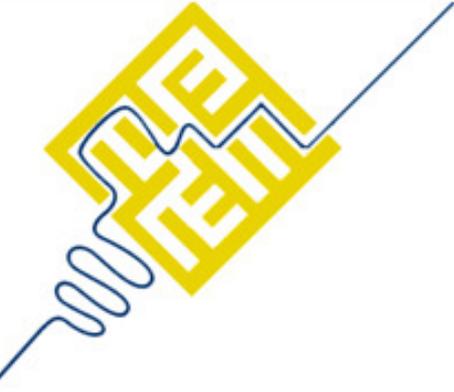
Games in work have also risen. 34% of 500 people polled by puzzle game provider Worldwinner said they play during working hours and 52% of these play periodically across the day. Bad news surely? Maybe not, as of these:

- 72% thought it reduced workplace stress
- 76% thought that it improved their productivity
- 80% felt they 'feel better focused'

Of the games played, more than 60% of workers who play games during their day use brainteasers, including puzzle and strategy games. "When I need a break during the workday, I often turn to online skill games to recharge my brain," stated WorldWinner player Jeff R. "I've found that taking a few minutes and challenging myself with a word game, puzzle or card game can really boost my productivity; I return to work with a fresh perspective and improved creativity. Playing games also gets me revved up before starting a big project – especially when I win."

Play and technology

Of course, almost all forms of play have now been touched by technology.



Technology accelerated gaming by automating the back-office in existing games but it also brought its own technology-specific forms of gaming. Even board games like chess have been revolutionized by the internet as players play each other across the globe.

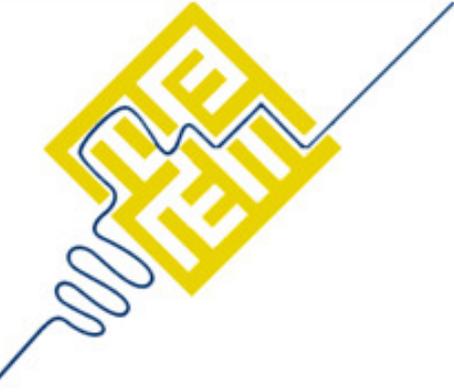
Gambling in all forms, but especially casino games and poker, has boomed online, as has the facilitation of online betting on sport. Games are commonly used as hooks on recruitment sites and for viral marketing.

Casual gaming (puzzles and mini-games) is now mainstream and tends to reflect a more general demographic. The mass market, family or casual gaming market has many more adults and women. Specifically, 61 percent of players are over the age of 35, 35 percent are over 45, and almost 9 percent are over 55.

MSN Games has a high proportion of female gamers, and is constantly adding content to appeal to a wide variety of audiences. Specifically, 2 of 3 players on MSN Zone and RealArcade are women, 55% of Pogo players are women and 70% of AOL game players are women (publicly quoted statistics). Published data supports the core demographic to be 60% females, ages 24-54. It's known that females tend to like puzzle games, which comprise a lot of the "casual" game market. Why older people and women? They are less intimidating, short, less violent, easy to learn (you don't need a manual), low cost barrier to entry; free trials, and a different form of marketing.



The mass market, family or casual gaming market delivered through MSN Games, WorldWinner, Pogo and Yahoo Games is often ignored when discussed in the context of Serious Games, but it may be just as interesting in the long term than full-blown, immersive games. This whole market is widening out to include immersive (such as Caspian Learning), casual, puzzles, gambling, PC and console.

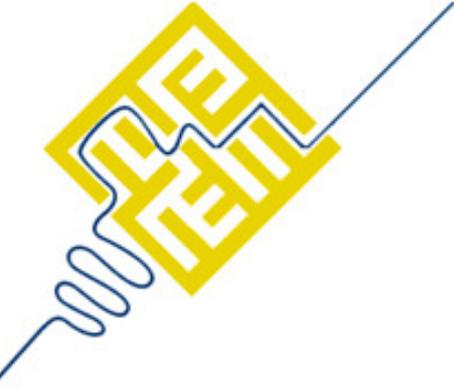


But it is computer games themselves that have the most pronounced effect. It has risen to challenge the film industry as a primary leisure activity. It is enough to say that this is now a huge, global industry. Even our personal space has now been invaded by mobiles and pocket sized consoles. Most mobile phones have pre-loaded or downloaded games, along with the same options for ringtones.

In conclusion, it is astonishing how pervasive games and play are in modern culture. The scale of the activity proves that it is a basic human activity, and that people in all cultures seem intrinsically motivated to play games. Games are clearly motivating. The argument is that we need only tap into this phenomenon in education and training to increase motivation in learning.

'Anyone who doesn't think that games have anything to do with learning knows nothing about games and nothing about learning'

It's not a matter of whether games can be useful motivators in learning, only how we can tap into their success.



Academic evidence

Play and games has been identified in Neolithic artefacts, dice and board games from Ancient Egypt, theatre and athletics in Greece and circuses in Rome.

Backgammon was invented in the Muslim world and the Chinese have played Mah Jong for centuries (Kanai and Farrell, 1952: 1–2).

Actual philosophical reflection on 'games' goes back to Pythagoras who saw three kinds of human benefits from games, in this case Olympic games: the life of those who came to the Games only to buy or sell, and who aimed at material satisfaction; the higher life of the participating athletes, who sought honour through action; and the highest, most contemplative life of all: that of those watching the festivities and seeking after truth (DeBurgh, 1923: 131).

But it wasn't until the 20th century that play and games came under serious and sustained academic scrutiny.

Games and civilisation

"Play cannot be denied. You can deny, if you like, nearly all abstractions: justice, beauty, truth, goodness, mind. God. You can deny seriousness, but not play."

Johan Huizinga

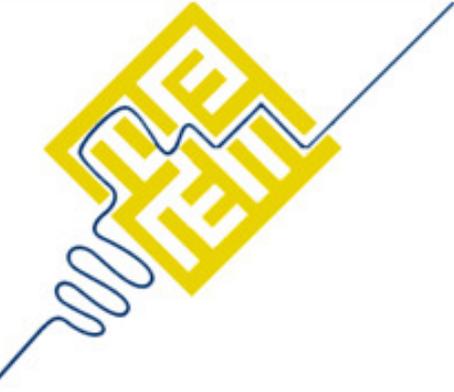
Johan Huizinga's *Homo Ludens* (1938) was the first of a long line of serious academic analyses of play, taking a broad look at 'man at play' and its role in civilization. He sparked off an academic interest in play and games that continues to this day.

Play, for Huizinga is a major cultural phenomenon, deeply embedded in our social behaviour and language. Not only is it part of all cultures, it is, in itself, a civilizing force. He looks at play in knowledge, war, poetry, philosophy and art, seeing the play-element everywhere in our culture.

For Huizinga play is older than culture. Animals play just like men. Even in dogs playing we see the significant function of play. All play has meaning. Even in the observation of animals at play, there seems to be an element of 'training' or preparation for what we will and do encounter in real life. Play is fun, but in preparation for serious business of life itself.

It has a primordial quality arousing passions (from extreme joy to intense anger), interest, devotion, even addiction. Play cannot be denied. Play is an imagined reality, 'the primeval soil of play' gave rise to myth and ritual, law and order, commerce and profit, craft and art, poetry, wisdom and science.

In an interesting precursor to the 'serious games' debate, he says, "To our way of thinking play is the direct opposite of seriousness." He then shows how games



transcend the simple distinction of serious/non-serious'. Play is not 'folly' nor just 'fun'. It can be serious and non-serious. What endures from Huizinga is the sheer gravitas of play and games and the idea that play and games are not necessarily fun. Play is no laughing matter. He saw play as a transcending, aesthetic phenomenon. They are often deadly (literally) serious, intense and meaningful. It imparts meaning as a sort of enhanced mimicry of life. His vision of play transcends the ordinary, and induces extraordinary goals, performance and aesthetic dimensions. It ennobles, in that it is a voluntary activity that is seen as transcending ordinary, everyday life.

Within a code of rules, expectations, time and space it binds us socially into a ritual of observation, discussion and participation. Within these defined second worlds we suspend reason and normal rules of life to take part in an intense, condensed experience. One plays to win, but honour in defeat is also prized. Far from being a form of trivial amusement it is a human need of deep and profound significance. Huizinga defined 'play' as a free activity, standing quite consciously outside 'ordinary' life, absorbing the player intensely and utterly.

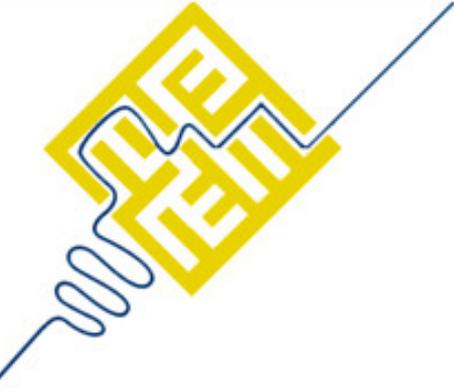
In his detailed historical analysis, he saw play as a defining phenomenon in Western civilisation, with contest and imaginary play intimately woven into our sense of civilised progress. "Civilisation is, in its earliest phases, played ...it does not come from play,it arises in and as play, and never leaves it." Play is not the basis of all culture but an important formative force behind the emergence and reinforcement of culture.

This book was a defining moment in the serious study of play and games and remains a seminal text.

Roger Caillois in *Man, Play and Games* (1958) is much more focused on the definition and classification of games. He criticizes Huizinga for bringing in too much unfounded mysticism and ignoring the 'material' side of play, especially in gambling. Gambling, he claims, has almost no place in Huizinga's analysis, whereas for Caillois, it is fundamental. He also put forward a schema to categorise games:

- Agon (games of competition)
- Alea (games of chance)
- Mimicry (games of simulation)
- Ilinx (games of vertigo)

He also saw games lying on a scale from open creativity to rule-bound complexity and adds two other concepts, Paidia (improvisation) and Ludus (rules).



Lasch (Lasch, 1979: 123) gives us a more contemporary five features of play:

1 *Winning and losing* within a defined period of time and space and according to agreed rules.

2 *Chance*. The throw of the dice, the luck of the draw, the spin of the roulette wheel, the state of the pitch: Chance thus forms a big element of play.

3 *New tricks*. From the cardsharp to the professional musician, progress – learning to be a better player and skills improvement – is vital to the business of play.

4 *Illusion, pretence and the suspension of disbelief*. Included here are acting, 'Show and Tell', role play, fantasy, magic and the assumption of false identities.

5 *Miniaturisation*. Children's toys and dolls are relatively small, and give their young owners a feeling of power, identity and control.

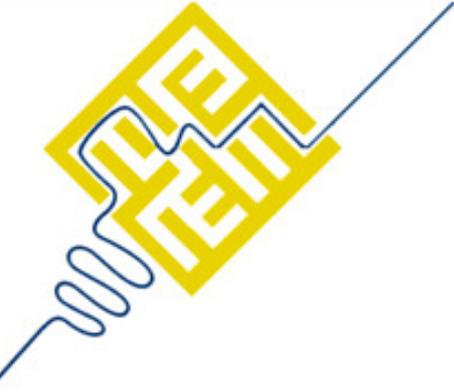
Games and postmoderns

Jean Baudrillard's *Simulacra and Simulation* takes the philosophical debate further through his look at the hyperreal and how it pushes out the real. Trapped inside a media-generated bubble, we become absorbed in our own illusions and can no longer tell the difference between simulacra and reality. This blurring of the real and illusory has become a major theme in games theory, pushed forward by the emergence of the mass participation in online virtual worlds.

The whole point of Baudrillard and this book is that man has lost his autonomy, that the fake, the simulacra, the image, the hyper-real product and economy controls us, not the other way around. There is no longer any true value because of the hyper-real and hyper value of global capital and thus our lives exchanged and interacting in this valueless vacuum our essentially meaningless, the only meaning found in understanding its meaninglessness. You will never look at politics or advertising in the same way again. He uses Disneyland as the epitome of the fake of modern life: the place where adults go to act like kids to hide the fact they really are children and that modern capital and society offers nothing but childishness and infantility.

Games as theatre

A less theory-laden but no less bold idea is presented in *Computers as Theatre* by **Brenda Laurel**, who sees theatre as the model interface and huge parallels between what computers and theatre deliver. In terms of character, action and communication she sees computer worlds as theatre. Both stimulate the imagination and emotion, and in computer games in particular, we can see strong narratives, plots and dramatic structure, pushing towards a goal.



This idea is taken a step further in *Hamlet on the Holodeck: the Future of Narrative in Cyberspace* by Janet Murray, which posits a future of total, realistic immersion, where we forego primitive game genres for more sophisticated worlds and narratives. Although she longs for books and traditional drama to be reflected in these future worlds, she wasn't far wrong in describing the freeform structures of such worlds, as Second Life and other virtual hang-out heavens have shown.

Game theory

Ultimately we had games lifted into the rarified world of mathematics and logic. On the one hand, between 1926 and 1928, the Hungarian physicist and mathematician John von Neumann (1903–1957) gave detailed consideration to games of strategy, to poker and to bluffing in poker. By the time of the Second World War, he helped build the Electronic Numerical Integrator And Computer (ENIAC) for the Manhattan Project and co-wrote the book that founded the theory of games (Von Neumann and Morgenstern, 1943: 186).

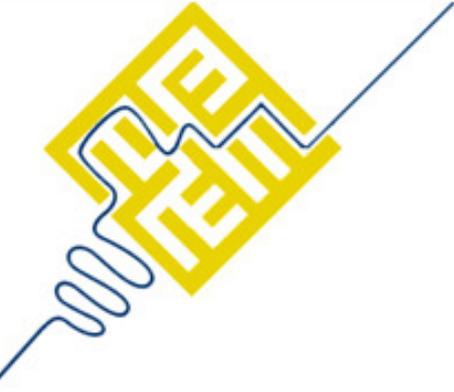
On the other hand, the pioneer of computers in Britain, Alan Turing, devised his famous conceptual test of artificial intelligence, published in 1950, as a duel of wits between a human being and a hidden machine. Significantly, the object of this game was for the former to guess the identity of the latter – man or machine. In this, the Turing Test itself imitated a parlour game known as the 'imitation game', in which a 'blind' interrogator, communicating only through the written word with two people claiming to be female, has to guess which of the two is in fact a man.

Game theory has since been taken into almost every aspect of human theoretical endeavour. It has also shaped many practical applications. One of the most famous being the game theory-designed auction for licences by governments. John Maynard Smith took game theory into evolutionary theory, where it has proved particularly effective.

Dynamic game theory now models games and predicts what where conflict and competition leads players, or decision-makers, to work co-operatively, or not, in areas as diverse as business, economics, biology and politics. Signalling, bargaining and auctioning are all being explored within game theory. It would seem that gameplay, and its theory, have a long and fruitful future in explaining much of what happens in agent-driven behaviour.

Evolutionary psychology and games

The whole debate has been massively informed by evolutionary psychology. Stephen J Gould points towards play as spandrels, behaviours that are happy accidents of evolution. Others look at play and sports as the rehearsal for acts of defence and violence. Rough and tumble play seems to be culturally universal.



Stephen Pinker points towards the, “stylised combat we call ‘sports’”. Many evolutionary psychologists see violence as a given in our evolutionary heritage and that the question is not why we are aggressive but how we stop being aggressive. The most violent stage of our development is not, as a recent large study has shown, adolescence, but just past the age of two! About half of all boys and just slightly less girls bite, hit and kick others during the ‘terrible twos’ stage.

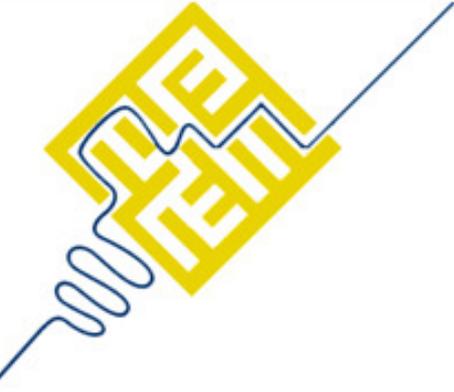
Jaak Panksepp has studied play in young rats who, like many mammals, do lots of rough and tumble play. He found that, even when denied the opportunity to play with other rats for long periods, they immediately revert to playful activity when reintroduced to other young rats. He sees play has having a similar instinctual neurological basis to fear and love. This social engagement among the young seems to be a common mammalian trait.

Games and narcissism

Of course, the gamers and game theorists have not had the entire playing field of debate to themselves. There’s been a lively counter-play culture in print.

Christopher Lasch in *The Culture of Narcissism* (1979) and many others since, have lambasted the culture of ‘play’ with its obsessive parenting, celebrity culture, consumerism and self-gratification, all aligned with narcissist tendencies. Neil Postman in *Amusing Ourselves to Death* (1985) warns us against a culture that puts amusement at the core of our activities and values. More recently we’ve seen *The Cult of the Amateur: How today’s Internet is killing our culture* by Andrew Keen (2007). This is more of a rant against Web 2.0. but is part of a long line of sceptics who see new technology as having more negatives than positives.

The most extreme example is perhaps Geoffrey Miller, in Brockman’s book *‘What is your most dangerous idea?’*. Miller sees evolved minds as faking fitness and becoming embroiled in ‘a carnival of addictively fitness-faking entertainment products’. He even thinks this may be why no other form of life in the universe has contacted us. We all end up trapped in our own narcissistic, virtual worlds of entertainment!



Conclusion

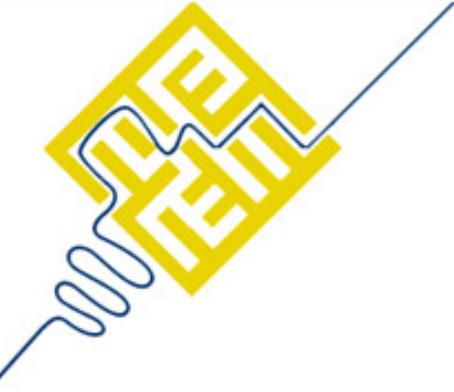
We have seen how the concepts of play and games remained rather elusive. They escape simple, definitive, dictionary definitions and this debate turns out to be sterile and unnecessary. We can dispense with the dictionary definitions and still make progress.

That progress is marked by a growing market for games based learning on a global scale. This market is pulled at one end by the hugely successful computer games industry and its obvious success in motivation. It is then pushed at the other by the need for more skilled employees and the help those for whom the traditional system has failed. Some exciting examples, such as Nintendo's Brain Training are opening up the consumer's eyes to the power of games in learning.

The prevalence of play in 20th and now 21st century culture is overwhelming. There is hardly a person, place or area of human endeavour, where its influence has not been felt. whether it is in sport or gambling, at work or at home, in sex and a myriad of other activities.

Then we have a rich stream of serious academic attention from Huizinga onwards that has uncovered the nature of play and games within the context of civilization and society. Games have also received academic interest in mathematics, evolutionary psychology, post-modern philosophy, anthropology and sociology. Play and games have become a major theme in 21st century academic debate.

The point of this current and historical survey is to show that neither games nor reflection on the subject are new. Computer games may be relatively recent but they are merely the latest manifestation of a basic, human phenomenon that has been around as long as we have had human cognition. The *evidence* for mass observation and participation in gambling, sport, performance and the leisure industry show that the use of play and games, for and beyond amusement, is overwhelming. We must take this as a given.



Bibliography

- Ackerman, D (1999) *Deep Play*. New York, NY: Random House
- Baudrillard, J (1988) *Simulacra and Simulation*. London: Verso
- Brockman, J (2007) *What is your most dangerous idea?*
- Caillois, R (1958) *Man, Play and Games*. Urbana and Chicago: University of Illinois Press, 2001 edition
- Csikszentmihalyi, M (1992) *Flow: the psychology of happiness*. London: Rider Books
- Csikszentmihalyi, M (1975) *Beyond Boredom and Anxiety*. San Francisco, CA: Jossey Bass
- DeBurgh, W (1923) *The legacy of the ancient world*. Harmondsworth: Penguin Books, 1961 edition
- Diamond, J. (1997) *Why sex is fun* New York, Basic Books
- Huizinga, J (1938) *Homo Ludens: a study of the play element in culture*. Boston, MA: Beacon Press
- Keen, A (2007) *The Cult of the Amateur: How today's Internet is killing our culture* (2007)
- King, L (2002), ed, *Game On: the history and culture of videogames*. London: Laurence King Publishing
- Lasch, C (1979) *The Culture of Narcissism*. New York, NY and London: WW Norton Company
- Laurel, B (1993) *Computers as Theatre* Addison Wesley
- Murray J (1997) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace* Simon and Schuster
- Postman, N (1985) *Amusing Ourselves to Death*, London, Heinemann
- Sutton-Smith, B (1997) *The Ambiguity of Play*. Cambridge, MA and London: Harvard University Press
- Wittgenstein. L (1953) *Philosophical Investigations*, London, Blackwell