Play in the Cyber Village

Margaret Sims,
Professor of Early Childhood,
University of New England,

margaret.sims@une.edu.au
website
http://www.une.edu.au/staff-profiles/msims7

The world is changing

- Children's experiences today are not the same as those we had when we were children
- Children are developing different understandings of the world to ours
- As adults they will see the world differently than we do today
- We need to support them to 'boldly go where no man has gone before'

Cyber-play

- One of the key differences is the cyber village and cyber-play
- Perceptions that this is negative and should be limited, especially for very young children
- I disagree
- Children need a range of play opportunities that reflect the world in which they live – the key is BALANCE

Play is

… *spontaneous, self-initiated and self-regulated activity of young children, which is relatively risk free and not necessarily goal-oriented. Play is intrinsically motivated: normally children have an internal desire and interest to engage in play, they are actively involved in creating their play and are in control of it. An essential characteristic of child's play is a dimension of pretend—that is, an action and interaction in an imaginary, "as if" situation, which usually contains some roles and rules and the symbolic use of objects (Verenikina, Harris, & Lysaght, 2003, p. 2)*
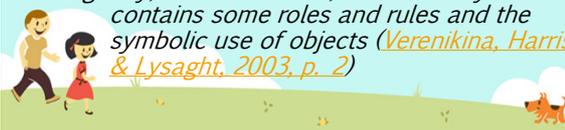
Play looks different today but even so

..the activity that 0-6-year-olds most often engage in today is play and free play. This reminds us that although we live in a society that is defined by technology, play is still the main activity in contemporary child culture. Play and child culture are constantly changing, and therefore adults cannot use their own experiences as a reference for growing up today

(Hardersen & Gudmundstdóttir, 2012, pp. 222 - 223).

Children are engaging in the cyber village

- LSAC data - majority of children's screen time is spent watching TV/DVDs (Sweetser, Johnson, Ozdowska, & Wyeth, 2012).
- 39% of children aged 2-4 years and 52% of children aged 5-8 use an ipad, iphone or similar touch screen devise (Worthen, 2012).
- Use of tablets and touch screen devices is growing geometrically.
  - USA only 8% of families owned tablet devices in 2011 but this increased to 40% in 2013, only 2 years later (Common Sense Media, 2013).

- children's access to some kind of smart device increased from 52% to 74% in those 2 years

- 38% children under 2 used mobile device in 2013.

- Of those children using mobile devices daily, 17% children were using for, on average, 15 minutes a day and these children reduced the time they spent watching TV by 30 mins a day.

- TV watching remained the dominant screen time exposure, for many children this screen time was in the form of watching downloaded or streamed programmes, thus tended to be more selective.

  - large gap between advantaged and disadvantaged families in access to mobile devices

Definition of cyber-play

- Early research - screen time all similar.

- This early view of screen time identified it as not appropriate for children <2.

- increasing screen time led to less opportunity for active, outdoor and creative play.

  - Increased risk of being overweight, of engaging in less healthy eating habits, developing poor social skills, poor self regulation skills, slower language development, and poorer memory and thinking skills (Department of Health and Aging, 2009).
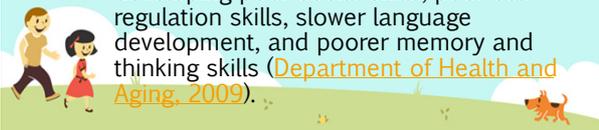
Active vs passive screen time

- Not all screen time the same

- " ... it is not appropriate to assume that all screen-related activities are negative or harmful" (Sweetser et al., 2012, p. 96)

- Eg children watching *Playschool* sang with and verbally interacted with presenters and were particularly responsive to segments involving movement, especially 'big actions' (Harrison, 2012)

- Salonius-Pasternak and Gelfond (2005) - cyber-play represents a qualitatively different form of play

- across a variety of electronic media: ipads, iphones and other tablet devices, computer activities and games, internet activities and games, video games (via consoles etc), portable audio and video devices, phones, software, e-books

- can be active: physically, cognitively, socially and emotionally

  - benefits (as with regular play) depend on the learning opportunities offered by the play activity.

techno-subsystem

- Added to Bronfenbrenner's ecological model

- A component of the microsystem

- In the techno-subsystem children interact with technology, and "... since tools, by definition, exceed human capabilities, interaction with increasingly complex tools requires increasingly complex cognitive processes"(Johnson, 2010, p. 178), leading to complex outcomes from cyber-play.

Outcomes of cyber-play

- Play impacts on children's socio-emotional, cognitive and physical development. It supports the development of emotional regulation, relationships with peers and family, attention, problem solving, creativity, fine and gross motor skills and physical health (Salonius-Pasternak & Gelfond, 2005).

- Play in the cyber-world also demonstrates these benefits.

Cognitive benefits

- Piaget- children learn through concrete manipulation of objects - McCarrick and Li (2007, p. 76) argue that "...concrete actually refers to what is meaningful and manipulatable, more than physical characteristics" so that virtual manipulation is as effective in children's learning.
  - High levels of physically active screen time improve school attendance and attention in school (Lieberman et al., 2011), school readiness and cognitive development (Li & Atkins, 2004), and attention and motivation levels (McCarrick & Li, 2007).
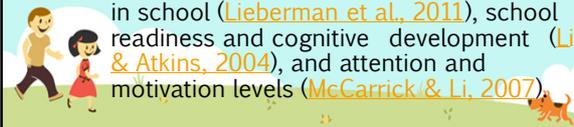
Video games

- Children who play a lot of video games better reading skills (Jackson et al., 2006; Johnson, 2006).
- improve visual processing skills, spatial imagery, iconic representation attention and concentration, visual perception, visual memory, visual attention simultaneous processing, problem solving skills and meta-cognitive skills such as planning and speed of information processing.
  - give children opportunities to make decisions and take initiative, experiences that are necessary in Erikson's model of cognitive development - Stage 2 (autonomy vs shame/doubt) (McCarrick & Li, 2007)
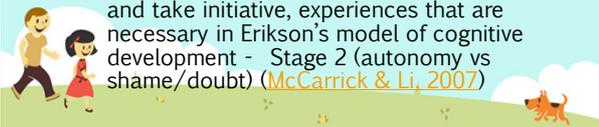
Internet

- High use of the internet increases reading and academic achievement (Jackson et al., 2006)
- Internet surfing can be limited for younger children because of the need to read but appropriate web browsers are available that can assist children young as 3 (Loo, 2012).
  - **internet use makes more of a contribution to the variance in children's cognitive development than socioeconomic status (Johnson, 2010).**

ipads and tablets

- range of apps available on ipads and other tablets benefit children's learning significantly.
- full range of necessary opportunities were available for mathematic learning - children many not realise they were doing maths as they saw the play as fun (Lange & Meaney, 2013)
  - interaction with adults was needed to gain the full learning potential poof the apps (Lange & Meaney, 2013)

Social benefits

- computers can enhance social interaction.
- Bird (2014) demonstrated that even though playing with an ipad is often thought of as a solitary activity, children rarely used it by themselves.
  - Muller and Perlmutter (1985) compared peer interaction between children playing on the computer and children doing puzzles. Peer interaction occurred 63% of the time during the computer play and only 7% of the time in puzzle play. Only 11% the time was at the computer was spent in solitary activity compared with 55% of the time with the puzzle.
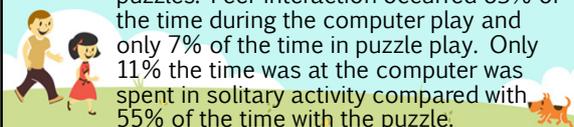
- Computers as well as humans can not only provide appropriate scaffolding but can create opportunities for peers to scaffold.
- Depends on how activities are set up.
- Joint computer use offers opportunities for peer support, encouragement, joint problem solving, cooperation, and managing turns (McCarrick & Li, 2007).
  - In the home, involvement of parents in digital play increases opportunities for social interaction

- physically active cyber-play is associated with an increase in children's self esteem (Lieberman et al., 2011).
- Children are more often on task when playing on the computer (McCarrick & Li, 2007) and exhibit higher levels of excitement when playing with a peer on the computer compared to playing alone
  - Children often extend digital play from the screen to other activities (Verenikina & Kervin, 2011) so digital play becomes part of their "wider interaction with their environment" (p10).
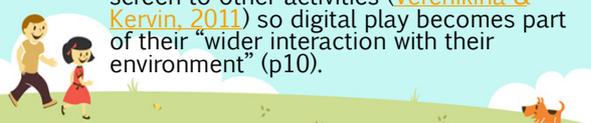
Language and literacy

- Using computers requires the use of language – either reading and typing or hearing and speaking, depending on the interface.
- creates opportunities to increase fluency and word knowledge, self talk and increases exposure to symbols (McCarrick & Li, 2007).
  - Online communication supports expressive and written language (Johnson, 2006) and literacy (Beschorner & Hutchison, 2013).

Physical activity

- There is concern expressed that sedentary e-games may displace physical activity
- evidence for this remains unclear.
- slight association high engagement levels in e-games and low levels of physical activity (Straker, Abbott, Collins, & Campbell, 2014) but there no evidence that this is a casual relationship:
  - laboratory studies demonstrate that engagement in e-games can actually promote physical activity but it is not clear that this effect generalises from the laboratory setting into the real world (Straker et al., 2014)
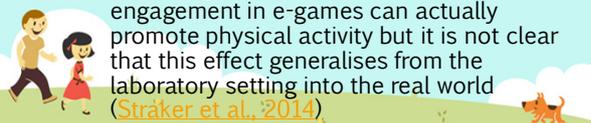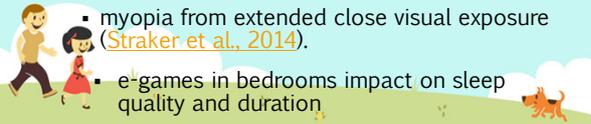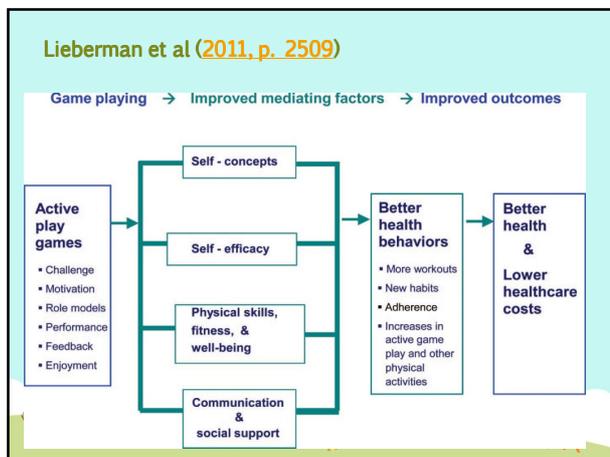
- engagement in e-games can improve fine motor skills and
- active e-games can enhance gross motor skills (Straker et al., 2014).
- Children playing video increase their metabolic and physiological response compared to those found when watching TV but these games are not a full substitute for physical activity (Wang & Perry, 2006).
  - comparable to light to moderate physical exercise
    - more energy is expended when the games require the use of the whole body rather than just the upper body (Biddiss & Irwin, 2010).
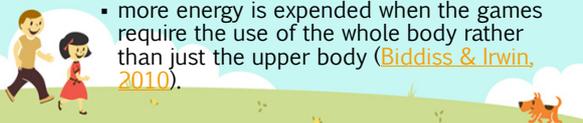
health

- Common concern increased risk of obesity but limited evidence (Straker et al., 2014).
- posture (in particular if children position themselves to play in awkward and sustained poor postures)
- repetitive input action (leading to musculoskeletal injuries).
- Active e-games may cause problems where children engage in extreme actions without the support of appropriate training or coaching.
  - myopia from extended close visual exposure (Straker et al., 2014).
    - e-games in bedrooms impact on sleep quality and duration

Lieberman et al (2011, p. 2509)

Game playing → Improved mediating factors → Improved outcomes

Active play games
- Challenge
- Motivation
- Role models
- Performance
- Feedback
- Enjoyment

- Self - concepts
- Self - efficacy
- Physical skills, fitness, & well-being
- Communication & social support

Better health behaviors
- More workouts
- New habits
- Adherence
- Increases in active game play and other physical activities

**Better health & Lower healthcare costs**

Role of adults

- Adults are less likely to be digital natives (Prensky, 2001)
- to support children's cyber-play we need to operate as collaborators in children's learning rather than experts.
- ie a constructivist view of learning (Young, 2008) where learning is socially constructed between children and adults.


Bird (2014, p. 15) suggests we need to:

- *Provide children with the time and knowledge to use digital technologies appropriately and extend their learning*
- *Plan, provide for and encourage social interactions between children and children and educators around digital technology use*
- *Develop children's skills as mentors for each other in their digital technology use*
- *Consider and provide applications (apps) that encourage imaginative play*

---
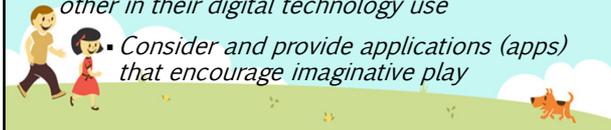
principles

suggested by the NAEYC and Fred Rogers Centre for Early Learning and Children's Media (www.naeyc.org/files/naeyc/file/positions/PS_technology_WEB2.pdf) :

- *The introduction to technology tools and interactive media should not harm children*
- *Developmentally appropriate practices must guide any decisions to include these*
- *Considerations must be given to children's age, interests, abilities, linguistic background and needs*
- *The effective use of technologies must be active, hands on, engaging and empowering*
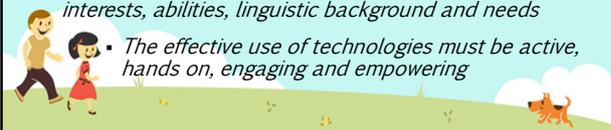
Straker and colleagues (2014, p. 483) evidence-based guidelines

minimal evidence, possibly from related research & expert opinion;
**some evidence;
***moderate evidence.

- *Be aware of what children are doing with e-games**
- *Use their interest in e-games as a platform for health intervention and learning**
  - *Raise importance of e-games exposure with parents and children**
  - *Educate parents about the negative effects of screens in bedrooms****
  - *Encourage socially positive games**

- *Encourage limiting sedentary leisure and enhancing active leisure – virtual and preferably real world****
- *Discourage poor and sustained postures, repetitive actions, high accelerations, high forces during e-game play***
- *Encourage breaking up SEG bouts every 30 minutes to provide an active break for body and eyes****
- *Encourage games with demonstrated learning benefits, skill benefits or educational content***
- *Encourage enjoyment in all play!**
  - *Use e-games as a supplement to aid intervention for special populations and rehabilitation***
  - *Use e-games as a vehicle for learning, for example serious games for health education***

Classic theories			
Surplus energy theory	Spencer 1973	play discharges natural energy of the body.	Does this cyber-play allow for discharge of natural energy? If so, in what sense?
Renewal of energy theory	Patrick 1916	play alleviates boredom while the natural motor functions of the body are restored.	Does this cyber-play engage the interests of the child (with particular children in mind as this criterion is considered)?
Recreation theory	Lazarus 1883, in Dockett and Fleer 1999	play restores energy that is expended in work	Does this cyber-play allow for rest and relaxation in an enjoyable and engaging way? If so, how?
Practice for adulthood	Groos 1898, 1901	play affords opportunities to develop skills and necessary for functioning as adults	Does this cyber-play provide opportunities for developing adult skills? If so, what kinds of skills?

Theories of play From (Verenikina, Harris, & Lysaght, 2003)

Modern theories			
Psychoanalytic theories	A. Freud 1968, S. Freud 1959, Erikson 1963	play reduces anxiety by giving children a sense of control over their world and an acceptable way to express forbidden impulses.	Does this cyber-play enable children to gain a sense of control over events that they could not control in their lives, including traumatic experiences? If so, in what way?
Cognitive theory	Piaget 1962	play consolidates learning that has already taken place while allowing for the possibility of new learning in a relaxed atmosphere	Does this cyber-play have the potential to consolidate existing learning? If so, what kind of learning? Does this cyber-play have the potential to develop new concepts and skills? If so, what concepts and skills? Does this cyber-play allow for and nurture the active participation of the child? If so, in what way? Does this cyber-play engage the child in such approaches as problem-solving and self-discovery?

| Arousal modulation theory	Berlyne 1960, Ellis 1973	play keeps the body at an optimal state of arousal, relieving boredom and reducing uncertainty	Does this cyber-play engage and sustain the interest of the child?
Bateson's communication and meta-communication	Bateson 1976	play promotes ability to comprehend multiple layers of meaning	Does this cyber-play operate at literal and figurative levels of meaning? Does this cyber-play enable children to reflect on the rules and means of communication?
Mead's theory of self	Mead 1934	play promotes sense of self in terms of personal identity and social relations with others.	Does this cyber-play develop a sense of a child's own identity? If so, how? Does this cyber-play develop a child's sense of his/her own social identities in relation to others? If so, how?

Sociocultural theory	Vygotsky 1977, 1978)—	play promotes abstract thought by separating meaning from objects and actions and using actions and objects in symbolic ways; play allows children to reach beyond their actual development in their cognition and self-regulation; in play children achieve a mental representation of social roles and the rules of society.	Does this cyber-play involve and develop use of symbolic meaning? If so, in what way? Does this cyber-play allow children to engage in their zone of proximal development and function above their everyday abilities in cognitive and socio-emotional areas? Does this cyber-play provide children with an opportunity to act out and explore the roles and rules of functioning in adult society? Does this cyber-play allow for group work and collaboration?

Conclusion

- current guidelines recommend limitations to children's cyber-play - not recommended at all for children under 3 (Department of Health and Aging, 2009).
- I disagree
- Children benefit from experiencing a full range of play opportunities and cyber-play is one of these opportunities.
- offers different learning experiences
- necessary for children to belong in the cyber-world of today
  - children who do NOT participate in the cyber-world are disadvantaged (brain development of those playing <2???)
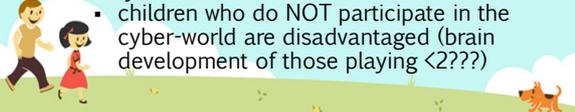
- We need to stop worrying about the potential negative impacts of cyber-play and start focusing on how we can best work with children to create a range of play experiences including cyber-play.

- Cyber-play is creating generations of 'digital natives' (Prensky, 2001) who belong in a cyber-world and who are shaping that cyber-world in a way that we cannot imagine today.

  - Let's work with our children to support them in their thinking, creating and problem solving as they shape tomorrow
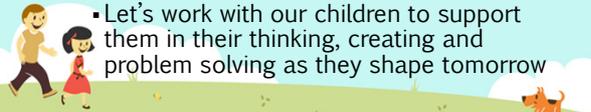
Reference list

- If you want the reference list please contact me