My Life in EUROPE

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The Project, Memory and Serious Games

GRAZIA CHIARINI – SARA CALCINI

LUA

The Project My Life:
a new methodology to introduce autobiography in the European context

It is based mainly on two scientific evidence :

The therapeutic, social and cultural value of autobiographical writing.

The beneficial effects of video games and online activities on the cognitive function.

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

The playful activity in the autobiographical field is an important training device to create narrative stories through educational activities.

«Ludobiography: tell and tell about yourself with the game» (G. Staccioli, 2010).

Autobiography

Game

Training cum research

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

Video Games and Other Online / ✕   +
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Video Games and Other Online Activities May Improve Health in Ageing

Marios Kyriazis [1], Elisavet Kiourti [2]

Affiliations + expand

PMID: 29435449   PMCID: PMC5796895   DOI: 10.3389/fmed.2018.00008

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Keywords: hormesis; information exposure; literacy practices; stress response; video games.

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Digital Game Interventions for Youth Mental Health Services (Gaming My Way to Recovery): Protocol for a Scoping Review.
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What Older People Like to Play: Genre Preferences and Acceptance of Casual Games

Alvin Chesham [1], Patric Wyss [1 2], René Martin Müri [1 3], Urs Peter Mosimann [1 2 4], Tobias Nef [1 4]

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- [2] University Hospital of Old Age Psychiatry, University of Bern, Bern, Switzerland.
- [3] Perception and Eye Movement Laboratory, Division of Cognitive and Restorative Neurology, Department of Neurology, University Hospital Inselspital, Bern, Switzerland.
- [4] ARTORG Center for Biomedical Engineering Research, University of Bern, Bern, Switzerland.

In recent computerized cognitive training **studies**, **video games** have emerged as a promising tool that **can benefit cognitive function and well-being.**

Future studies should continue exploring the potential of CVG interventions for older adults in improving cognitive function, everyday functioning, and well-being. We see particular potential for CVGs in people suffering from cognitive impairment due to dementia or brain injury.

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> Clin Gerontol. May-Jun 2019;42(3):334-343. doi: 10.1080/07317115.2017.1381867. Epub 2017 Dec 8.

Autobiographical Narration as a Tool for the Empowerment of Older Adults' Subjective and Psychological Wellbeing in Nursing Homes

Federica Biassoni [1], Giada Cassina [1], Stefania Balzarotti [1]

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PMID: 29220628   DOI: 10.1080/07317115.2017.1381867

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Abstract

Objectives: Conceiving narration as a resource to promote older people's wellbeing, the present work aimed to implement a narrative-based intervention to empower the subjective and psychological wellbeing of older adults living in nursing homes.

Methods: Twenty-one nursing-home residents took part in a narrative training experience consisting of three weekly interview sessions. During each interview, a psychologist helped the participants to construct an autobiographical narrative about their present life in the nursing home based on a Deconstruction-Reconstruction technique. Subjective and psychological wellbeing variables were assessed before and after the intervention.

Results: Subjective but not psychological wellbeing increased over the course of the intervention. The participants reported to appreciate the intervention.

Conclusions: Although preliminary, the results suggest that brief narrative training based on narrative therapy can positively affect nursing-home residents' subjective wellbeing.

Clinical implications: Brief narrative interventions implementing deconstruction-reconstruction

autobiography - Search Results × +

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...participants believe in this autobiography. Participants were split up into two conditions: forced confabulation condition and control condition. ...

☐ The use of **autobiography** in psychotherapy.
6   Sommer R.
Cite   J Clin Psychol. 2003 Feb;59(2):197-205. doi: 10.1002/jclp.10146.
Share   PMID: 12552628   Review.

☐ Guided **autobiography**'s developmental exchange: what's in it for me?
7   Thornton JE, Collins JB, Birren JE, Svensson C.
Cite   Int J Aging Hum Dev. 2011;73(3):227-51. doi: 10.2190/AG.73.3.c.
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The developmental exchange is a central feature of social development, interpersonal dynamics, situated learning, and personal transformation. It is the enabling process in Guided **Autobiography** (GAB) settings that promotes the achievement of personal goals and group accomp ...

☐ Biography, **autobiography** and history.
8   Wilson L.
Cite   Int J Psychoanal. 2005 Feb;86(Pt 1):155-8. doi: 10.1516/lt3j-q4lk-727x-wq22.
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☐ THE ONEIRIC **AUTOBIOGRAPHY** OF GEORGES PEREC.
9   Schwartz HP.
Cite   Psychoanal Q. 2016 Jan;85(1):155-78. doi: 10.1002/psaq.12062.
Share   PMID: 26784719
The present author treats these dreams as chapters in a bizarre **autobiography**, elaborating Perec's life through a discussion of those dreams and using them as a starting point with which to discuss his views of dream interpretation and the role of dreams in psychoanalysis. ...

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Does Video Gaming Have Impacts on the Brain: Evidence from a Systematic Review

Denilson Brilliant T [1], Rui Nouchi [2][3], Ryuta Kawashima, 2019 Sep.25

Video gaming, the experience of playing electronic games, has shown several benefits for human health. Recently, numerous video gaming studies showed beneficial effects on cognition and the brain.

This systematic review evaluates the beneficial effects of video gaming on neuroplasticity specifically on intervention studies using neuroimaging techniques. (CT, Computed Tomography; fMRI, functional Magnetic Resonance Imaging)

Results of this systematic review demonstrated that video gaming can be beneficial to the brain.
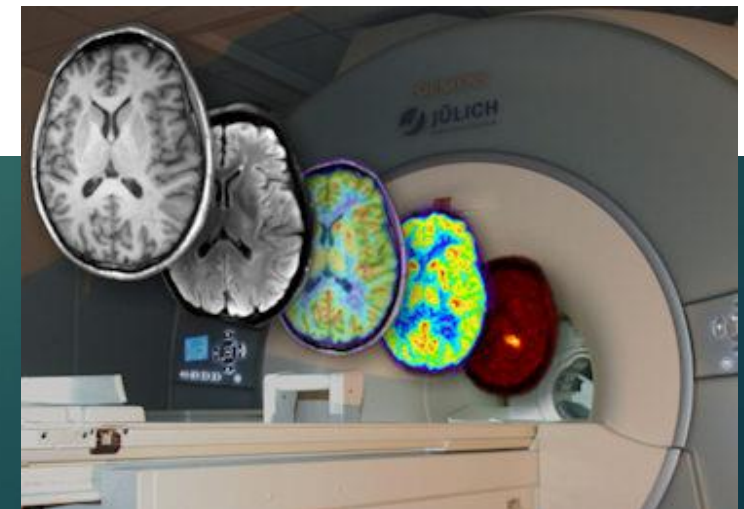
What is the neuroplasticity?

The Neuroplasticity is brain's ability to change and adapt.

Experiences or memories change a brain's physical structure.

Plasticity occurs throughout the whole life (Merzenich & others, 1983).

Brain functions move from damaged area to undamaged area after trauma.

Dr.ssa Grazia Chiarini e Dr.ssa

Wellcome Images
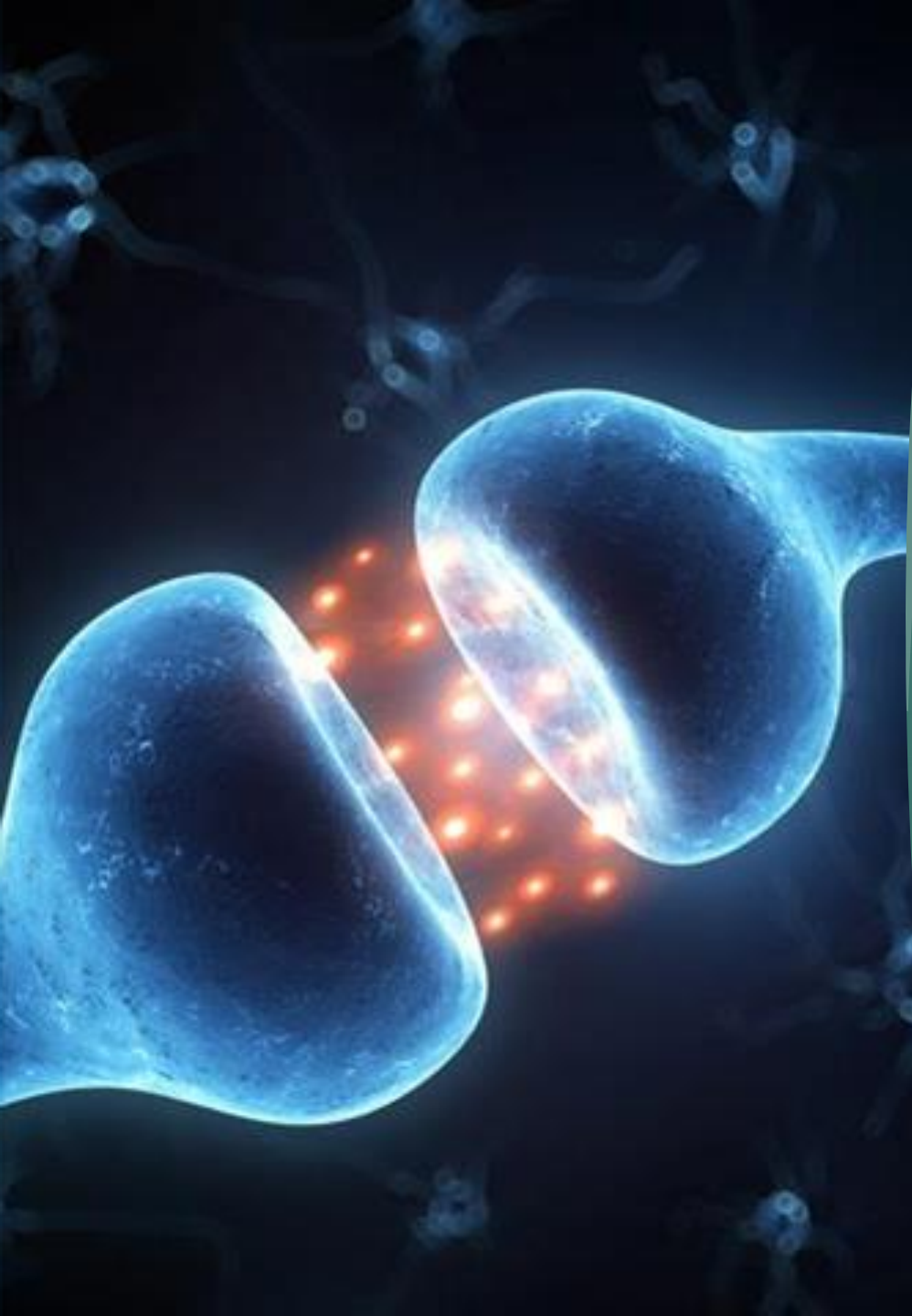
Neuroplasticity and Neurogenesis

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

Events create or consolidate connections (synapses) between existing neurons. They also promote the growth of new neurons (neurogenesis). (D. Siegel, 2017).

The huge number of possible connections (more than 10,000 connections for neuron) gives the brain great flexibility.

Memory

Memory is the ability that our brain has to store information, memories, images that come from outside through the sense organs.

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

Human Memory
(M. Atkinson e Shiffrin 1968).

Sensory Memory information through our senses . Duration 3-4 seconds.

Short-Term Memory Duration 18 seconds , 5-9 items of capacity – Miller 1956)

Long-Term Memory Unlimited duration like hard disk of computer, capacity and coding is semantic . Information also from Short Term Memory

iTeachPsych

Human Memory

Sensory Register Information through our senses.

Short Term Memory Acoustic, 18 seconds duration, 7 +/- 2 items of capacity.

Long Term Memory Unlimited duration, capacity and coding is semantic.

Explicit Memory (conscious)

Implicit Memory (unconscious)

Declarative Memory (Fact and events)

Procedural Memory (Skills and tasks) How to ride a bike

Episodic Memory (Events and Experiences) Your holiday to Greece

Semantic Memory (Facts and knowledge) Capital Cities or Word Meanings

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

The scientific literature distinguishes three different phases of mnestic elaboration:

The coding phase : the message is inserted into previous information and transformed into a code

The retention phase: the memory is consolidated

The recovery phase: the information is recalled from long-term memory in order to use it, understand the present and help make future decisions. **Memory is fundamental to survival**

Memory processes are possible thanks to brain **neuroplasticity**

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

Autobiographical Memory (explicit memory, conscious)

► Refers to memory for an individual's life events

► Includes information about specific events or episodic that we have experienced.

► Is preserved in the Hippocampus, which connects memories to specific spatial contexts in which the event occurred.

► Amygdala: plays an important role in the evaluation of the emotional meaning of the afferent stimuli (Le Doux, 1986);

► The prefrontal cortical region has direct connection to the amygdala in situations of stress and fear.
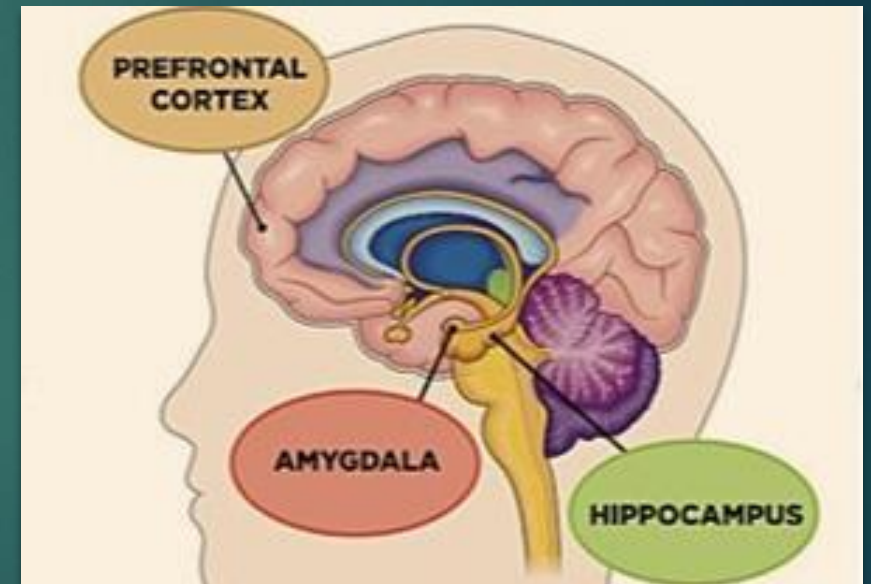
Memories and Emotions

A memory related to an emotionally engaging situation is sharper.

Emotion and autobiographical m   ×   +

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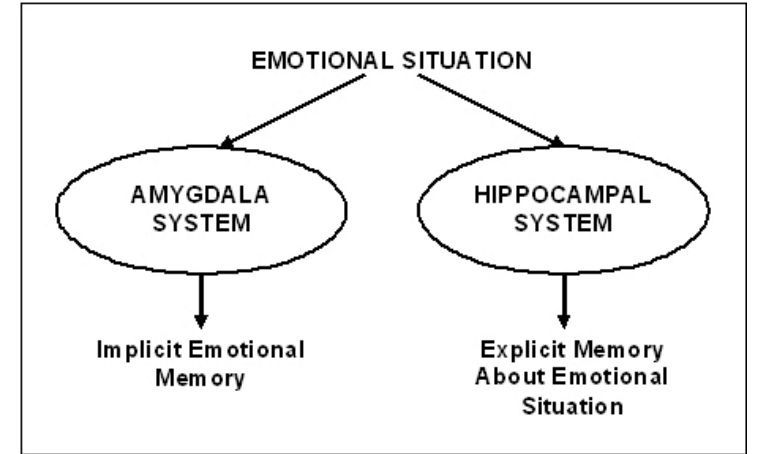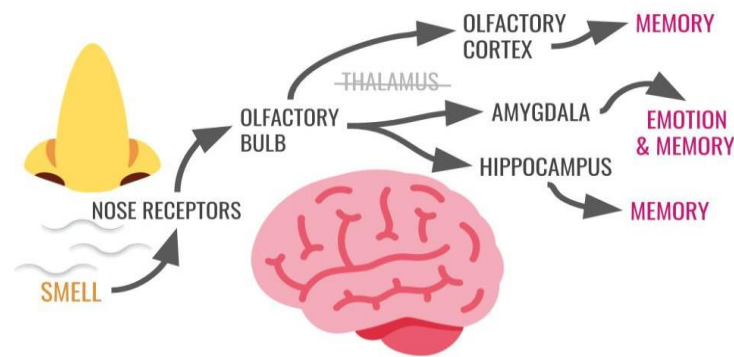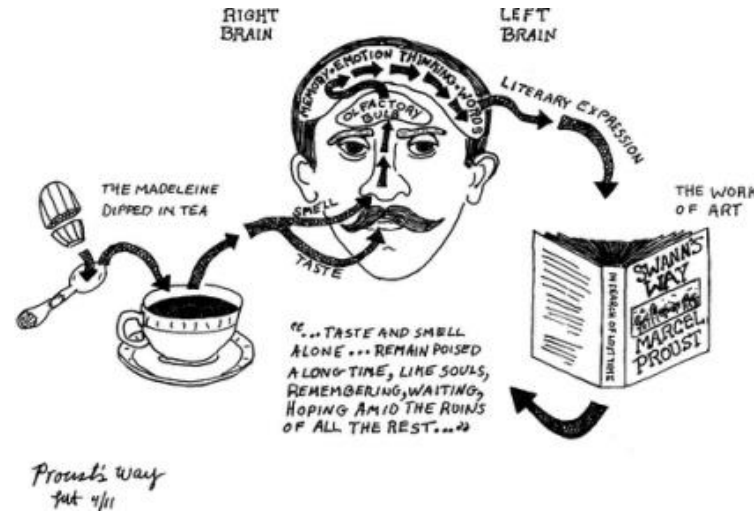
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Emotion and autobiographical memory

Alisha C Holland [1], Elizabeth A Kensinger

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Abstract

Autobiographical memory encompasses our recollections of specific, personal events. In this article, we review the interactions between emotion and autobiographical memory, focusing on two broad ways in which these interactions occur. First, the emotional content of an experience can influence the way in which the event is remembered. Second, emotions and emotional goals experienced at the time of autobiographical retrieval can influence the information recalled. We discuss the behavioral manifestations of each of these types of interactions and describe the neural mechanisms that may support those interactions. We discuss how findings from the clinical literature (e.g., regarding depression) and the social psychology literature (e.g., on emotion regulation) might inform future investigations of the interplay between the emotions experienced at the time of retrieval and the memories recalled, and we present ideas for future research in this domain.

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Memory and Aging

Some basic cognitive processes, with aging, become slowly less efficient and can impair general cognitive functioning, including memory and its systems.

One of the main causes of mental aging is the loss of neurons over time.

The loss of neurons mainly affects certain structures such as the hippocampus and the prefrontal cortex.

There are also many conditions that can cause memory disorders, such as high blood pressure, diabetes and thyroid disease.

Thanks to neuroplasticity and neurogenesis, we can also activate cognitive resources through memory training.

The Cognitive Games

Cognitive games are useful for training mind and cognitive skills and share some important features:

Structured activity, with a recognizable purpose and goal.

Acquisition of new skills / Consolidation of present skills.

Simple, clear and explicit instructions.

Ability to measure progress.

Enhancement and gratification related to the task.

Dr.ssa Grazia Chiarini e Dr.ssa Sara Calcini

Examples of cognitive games

- ▶ Board games

- ▶ Puns

- ▶ Memory

- ▶ Diary

- ▶ Write down your memories

- ▶ ...

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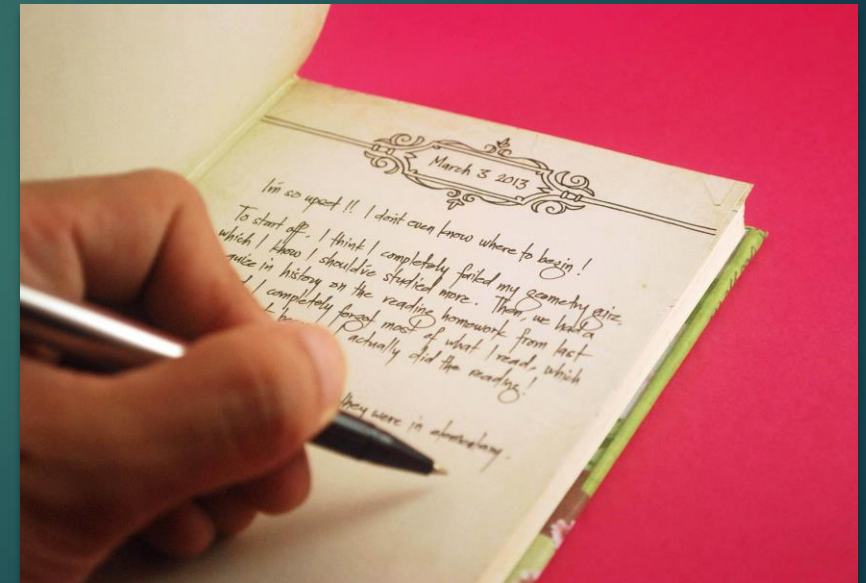
Online Games

► Cognitive stimulation through online gaming is a method of maintaining an active brain and limiting the decay of the cognitive functions, necessary for carrying out daily activities in the elderly with dementia (Tziraki et al., 2017).

► Research has found that older people (not just young people) can be players of Serious Games (Muscio et al., 2015).

Serious games

- Cognitive games called "serious game" or "game-based learning" are interactive virtual simulations with a well-structured objective in which serious and playful aspects are balanced.

- They are designed for educational purposes in the context of adult education in a learning by doing perspective.

- Experiential learning encourages deeper and lasting behavioral changes;

Serious games

The oxymoron (combining words with opposing concepts) Serious Game has ancient origins.
The first to use this terminology were the Neoplatonic philosophers who coined the Latin expression "serious ludere", to identify a combination of carefree and serious topics.
In the digital field, they were first mentioned in 2002 following an initiative led by David Rejeski and Ben Sawyer.
The authors published a white-paper (Serious game: improving Public Policy through Game-based Learning and Simulation);
The authors in this book pointed out how to use the video-game industry to empower public organizations through learning and simulation based games (Ma et al, 2011).

Serious games

People with cognitive impairment can train cognitive functions.

► Through small challenges and simple rules, participants are involved in achieving a common goal (Wouters et al, 2013).

► They are easy to use after a first phase of familiarity (Zucchella et al. 2014).

► They can be used in different contexts (home, nursing homes) with the involvement of different figures (therapists, caregivers)

► The frequency can be variable (once a week and/or every day) and games can be repeated several times.

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Beneficial effects of serious games

(Kyriazis, Kiourti, *Video Games and Other Online Activities May Improve Health in Ageing, 2018*).

Reaction time

Memory

Attention Span

Control of cognitive functions
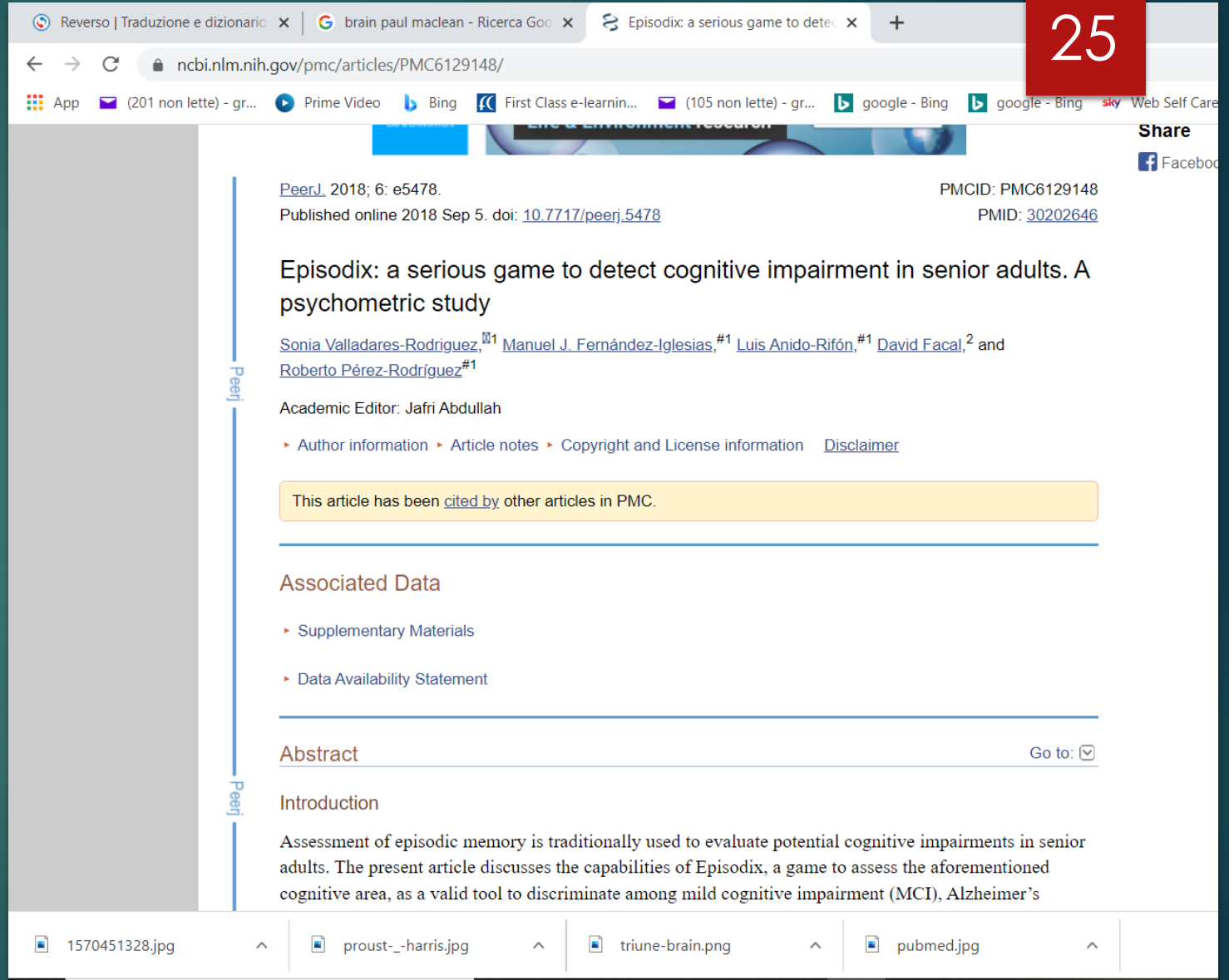
Increase of the ability to multitasking

An example of a serious game

Episodix

It's one of the most recent Serious Games found in literature (Valladares-Rodriguez et al., 2018). Episodix has the potential to evaluate episodic memory, a sort of digitization of the California Verbal Learning Test (CVLT).
This game is functional to the discrimination of healthy individuals and individuals with mild cognitive impairment.

Kyriazis M., Kiourti E.(2018). Video Games and Other Online Activities May Improve Health in Ageing. Front. Med. 5 (8)

Manera V. Petit P-D, Derreumaux A, Orvieto I, Romagnoli M, Lyttle G, et al. (2015). "Kitchen and cooking",a serious game for mild cognitive impairment and Alzheimer's disease: a pilot study. Front. Aging Neurosci., 7(24)

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Tziraki C., Berenbaum R. , Gross D., Abikhzer J., Ben- David B.M. (2017). Designing Serious Computer Games for People With Moderate and Advanced Dementia: Interdisciplinary Theory-Driven Pilot Study. JMIR Serious Games. 5(3)

Zucchella C., Sinforiani E., Tassorelli C., Cavallini E., Tost-Pardell D., Grau S. et al., (2014). Serious games for screening pre-dementia conditions: from virtuality to reality? A pilot project. Fuctional Neurology, 29 (3), 153-158

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