

# Potential effects of media use on adult creativity

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## Abstract

*This paper is based on questions raised by a keynote address on the way that different media affect the way children learn and interact with the world. Extending these ideas to the area of adult creativity, we find there is a lack of research about the potential for different types of leisure time media use to affect adult creativity in different ways. Can adults still be influenced by the media they use during their leisure time? Can reading make them more creative than playing video games? Can watching television make them more creative than listening to music? Studies combining media effects and adult creativity are rare so, in order to find answers, a (necessarily selective) review of the research in both areas is provided. Parallels in the research trajectories of both these fields will be discussed in terms of their implications for a proposed study that aims to fill some of the gaps in the research on the effects of communication on creativity.*

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On 25 June 2008, Baroness Susan Greenfield delivered the keynote address at CCI's *Creating value: Between commerce and commons* conference in Brisbane. Her talk, "Creating creative brains" (Greenfield, 2008), covered the basics of brain development and how that may relate to creativity but also touched on how the environment (including media technologies) could affect the physiology of the brain and, in turn, its potential for creativity. In essence, the more stimulation a brain receives from its environment, the greater the number of brain cell connections and the greater the ability to conceive unusual or "creative" ideas. Greenfield argues, however, that using computer games as a leisure activity can overstimulate a child's brain, providing a world of sensation but not the conceptual framework necessary for higher-level thinking. Reading Jane Austen, to use her example, may teach a person more about social interaction than playing MMORPGs.

While Greenfield did not explicitly discuss its relation to creative ability (and was very careful to describe media used for leisure as opposed to education and work), the dichotomy she presented between "people of the book" and "people of the screen" raised interesting questions about the way that different leisure media (such as novels, comics, music, television, films and computer games) affect the way we learn and interact with the world. Is there the potential for different types of media use to affect creativity in different ways? Can reading make you more creative than playing video games? Can watching television in your leisure time make you more creative than listening to music? Studies in this area are rare so, in order to find answers, a (necessarily selective) review of the research in both media effects and creativity is provided. Parallels in the research trajectories of both these fields will be discussed in terms of their implications for a proposed study that aims to fill some of the research gaps identified by Greenfield's address.

## **Media effects**

Although research on media effects is relatively modern, a much longer history exists of thinking (or worrying) about the effects media may have on consumers. The advent and rise of the novel in the 17<sup>th</sup> century, for instance, prompted concerns about their potential moral, psychological and physical corruptive effects, particularly on female readers who were thought to have difficulty distinguishing fiction from reality (Taylor, 1943). With little to no evidence available proving a causal link between media and its effect on an audience, concerns about the media have largely been driven by public fears predicated on maintaining the physical and moral wellbeing of its citizens and the established social order. That the content of media products could have direct effects on their consumers was taken as “common sense” and became the unquestioned foundation on which many early studies were based. Featuring heavily as evidence were attendance and consumption figures combined with anecdotal claims from concerned parents, religious groups and politicians that connected the media to broader social ills.

### **Direct Effects**

Some of the earliest media effects studies connected the increasing popularity of the cinema to rising crime rates and lowering standards of public morality (Gulick, 1909; Edwards, 1915). Instead of looking further into the complexities of their changing society, researchers focused on the newest leisure activities as the cause of its newest social problems: movies were believed to model new behaviours for their audience to learn and emulate rather than simply reflect existing behaviours and values.

Other early studies investigated more closely how audiences came to understand the new language of the screen and how this affected people’s emotions, attention and perceptions of reality (Munsterberg, 1916). Understanding how to control people’s perceptions became imperative with the advent of World War I. Lippmann (1922), who also wrote propaganda later disseminated throughout Europe, believed simplifying, limiting or altering the information shown in films and newspapers could shape the conceptual frameworks or perceptions people use to understand the world and, in turn, modify public opinion and motivate action. Lasswell’s (1927) empirical analysis of propaganda content led him to conclude that it was “one of the most powerful instrumentalities in the modern world” (p. 220). The more people were exposed to propaganda, the “more powerful will be the united devotion of the people to the cause of the country, and to the humiliation of the enemy” (p. 76).

What these and similar studies have in common is their treatment of media consumers or audiences as both passive receivers of information and an undifferentiated mass. Using this hypodermic needle or magic bullet view of communication, audience members are all injected or hit with messages when they watch a movie or read a newspaper and are unable to prevent that information from infecting their behaviour, attitudes or emotions. As Gauntlett (2005) points out, such a view not only ignores that not all consumers of the same media product are affected in the same way or at all but also assumes that the researchers or particular social or cultural groups are somehow immune to the effects. While this one-way transmission model of communication spoke to the fears of the general public, it was generally too simplistic to explain the complex results that gradually emerged from studies conducted in the 1920s and 30s.

After the war, a series of 13 studies financed by the Payne Fund was set up to investigate motion pictures in terms of content, audiences and effects on young people. Results of the studies appeared to support public fears of direct media effects: young people learned and imitated behaviour and had emotional responses to what they saw on the screen; those with high levels of movie attendance were also found to have lower intelligence and disturbed sleep patterns, and behave more poorly in school (see, for example, Blumer & Hauser, 1933; Dysinger & Ruckmick, 1933). But while researchers demonstrated an association or correlation between movies and delinquent behaviour, they could not show a cause-and-effect relationship. Charters (1933) questioned whether movies attracted young people who were already prone to such behaviour, while Shuttleworth and May (1933) argued that effects were not universal, with the same movie affecting young people in many different (and sometimes opposing) ways.

### **Limited or indirect effects**

The extreme and simplistic view of media consumption of direct effects theory was largely tempered by several noteworthy studies conducted in the 1940s. Primary among these was the work of Lazarsfeld who aimed to investigate the impact of the media during a presidential campaign (Lazarsfeld, Berelson & Gaudet, 1948). Lazarsfeld found that voters were influenced more by factors such as education, status and group membership than media use, turning instead to friends, family and opinion-makers for advice and clarification. This produced a two-step flow of media influence where a small number of opinion-makers filtered media messages and they, in turn, influenced voters (Katz & Lazarsfeld, 1955).

Another finding of Lazarsfeld et al.'s (1948) studies was that people's behaviour and attitudes were only rarely altered. Rather than changing voters' minds directly, the media was more likely to reinforce existing attitudes and opinions or to crystallize existing party loyalties. By the time most people became adults, they had developed attitudes, opinions, group connections and loyalties that made them selective not only in which media they used but also what information they took from them. Because of this, actual effects are rare. Similar results were found in Hovland's World War II research on military training films and soldiers' attitudes (Hovland, Lumsdaine & Sheffield, 1949). Although the films increased the soldiers' factual knowledge, they tended to reinforce existing attitudes towards the war and motivations for fighting rather than change them. While the results of these studies diminished the view of media power as absolute and universal, they did not indicate that media were powerless or without influence.

### **Psychological and social conditions**

Following on from the findings of the limited effects paradigm, researchers sought to understand the personal and social conditions that influenced whether or how media effects occurred. Television, which had become immensely popular in the 1950s and 60s, became the territory in which much of this research was conducted. The best known studies in this area were conducted by Bandura (1977; 2009), a social psychologist who saw multiple factors at work in the influence of television violence on children.

Bandura's theory of social learning argued that people, even children, were not just reactive as had been assumed in direct effects paradigms but also self-developing, self-reflexive and embedded in a number of social systems and networks. What this meant

for media studies was that children were viewed as being capable of learning violent behaviour from a variety of sources, including but not limited to television, but this in itself was not enough to cause children to act violently. The means and motivation for violent behaviour must also be in place. A child's previous learning experiences, for example, may make them more likely to act aggressively after seeing a television character being praised for violent behaviour (Bandura, 1977; 2009).

Based on these results, a direct and one-way causal link between television violence and violent behaviour could not be established. Rather, media consumption could only be seen as just one factor among many other psychological and social conditions. Individual differences in biology, experience and circumstances helped to explain why not all adults or young people were affected by the same media or in the same ways. It also helped to explain the gradual paradigm shift away from considering the audience as a passive and uniform mass and towards audience members as active media users.

### **Uses and gratifications**

Consideration of individual difference led to questions of media use that had yet to be studied in any depth: why and how do people use particular media? According to the uses and gratifications perspective, the answers to those questions were yet another variable in the effects various media could have on individuals. Early studies that focused on function, such as Berelson's (1949) paper on newspaper reading, gradually gave way to studies, like Pearlman's (1959) paper on television and escapism, that examined how these functions gratified particular psychological or sociological needs. McQuail, Blumler and Brown (1972), for example, found the most common gratifications sought by television viewers were: diversion, surveillance, personal identity and personal relationships.

More generally, Katz, Blumler and Gurevitch (1973) articulated uses and gratifications studies as being concerned with:

- (1) the social and psychological origins of (2) needs, which generate (3) expectations of (4) the mass media or other sources, which lead to (5) differential patterns of media exposure (or engagement in other activities), resulting in (6) need gratifications and (7) other consequences, perhaps mostly unintended ones. (1973, p. 510)

In other words, each individual's unique combination of needs led them to choose specific media texts, use them in particular ways and be more or less receptive to their influence. From this perspective, media use may be more accurately treated as a symptom of psychological or social needs or issues rather than their cause (Gauntlett, 2005).

### **One variable among many**

While this review of media effects studies has been necessarily brief, what it shows is a general movement towards considering the media as just one of multiple variables that affect people's attitudes, opinions and behaviour. The direct effects model, of course, remains popular in the press, political circles and some academic work. Public fears peak when tragedies or dramatic social events occur and, in the search for answers, media are often pushed into the firing line in order to avoid more complex explanations (Jenkins, 1999).

What media effects research shows is that a direct cause-and-effect relationship is both difficult to prove and misleading when media are seldom the only variable operating on

an individual's opinions, attitudes and behaviour. Media are not consumed in isolation but in any number of ways and for a number of reasons by people with a unique set of experience who are embedded in particular social and cultural contexts. Like other artefacts and experiences, media can be seen to teach, reinforce, produce emotional responses and satisfy psychological needs. From this, it can be seen that media do influence individuals to some degree but are just one variable among many in any given situation.

## **Creativity**

As with media effects, creativity research has transitioned from a focus on passive individuals and single factors to more complex systems of individual, social and cultural variables. With the notable exceptions of thinkers and philosophers such as Aristotle, Hobbes and Locke, who emphasise the conscious, empirical or rational elements of creativity (see, for example, Aristotle, Heath, Halliwell & Innes, 1996; Hobbes, 1998; Locke 1995), pre-twentieth century ideas portray creativity as divinely inspired, as the product of an extraordinary individual or genius or as a symptom of mental illness (Plato, 1996; Tigerstedt, 1974; Pope, 2005).

## **Early influential studies**

In 1869, Galton published *Hereditary genius* (1892), aiming to demonstrate that man's natural abilities (including creativity) are transmitted from generation to generation by the same mechanisms addressed in Darwin's theory of evolution in plants and animals. Considered one of the first scientific studies of creativity, Galton collated biographical and familial information on over a thousand men of eminence from fields such as science, literature, art and music. Although Galton found that one in ten of the eminent people chosen had one or more close relatives who had also achieved eminence, the usefulness of this study was limited because Galton failed to consider the influence familial nepotism may have had in the society in which the study was conducted.

One of the first major approaches to the study of creativity to appear in the twentieth century was that proposed by Sigmund Freud. Using the mechanics of biological drives and wish fulfilment, Freud argued neurosis and anxiety could be channelled into creativity rather than compulsive behaviours (Freud, 1959). Although a keen follower of Freud's theories of psychoanalysis, Jung disputed Freud's view of creativity, arguing that art (and therefore creativity) "is not a disease, and consequently requires a different approach from the medical one" (1966a, p. 71). Rather, Jung distinguished between two types of creative acts: psychological (drawing on the conscious mind) and visionary (tapping into the collective unconscious) (1966b). While Jung's ideas on visionary art can be equated to earlier inspirational approaches, his lasting contribution to the study of creativity evolved from his work on behavioural differences and dichotomous personality types (Jung, 1971).<sup>1</sup> As with Galton's work on inherited mental attributes and Freud's ideas on the unconscious mind, Jung's personality types have

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<sup>1</sup> Jung (1971) asserted that four functions of consciousness (thinking, feeling, sensation and intuition) define the ways in which people understand the world while two attitudes of consciousness (introverted and extroverted) define the general orientation or direction of their interests (e.g. the physical world or the psychological one, action or analysis). It was suggested most people display a dominant function and attitude with its opposite type often repressed and acting on the unconscious. According to these types, writers, artists or musicians are more likely to fall into the introverted intuitive and introverted sensing categories.

influenced a variety of interdisciplinary studies and procedures that attempt to paint a portrait of creative people or even to predict those who may produce creative ideas and products in the future.

### **Psychological studies**

Psychology's early twentieth century concern with identifying extraordinary individuals had turned its attention to the testing of intelligence. Work on ability testing for the military during World War II, however, showed standard intelligence measures were unable to predict those individuals who would excel at "leadership, innovation or technological inventiveness" (Feldman, Csikszentmihalyi & Gardner, 1994, p. 5). Guilford (1950) saw the need to construct tests for creativity that, rather than testing for convergent thinking which sought out a single "right" answer, were based on divergent thinking skills which tended to frame problems in new ways that lead to (multiple) novel solutions.

Creativity, from this approach, was viewed as a measurable mental trait or characteristic, present in all humans, but at different levels of ability. In this way, psychometric (or pen-and-paper) tests could be applied to the general population, isolating creative abilities and traits by comparing those with high and low scores, and challenging the view that creativity was both rare and unmeasurable. Guilford's (1954) Alternative Uses and Consequences tests became popular in creativity research on children but had little to no value for predicting their creative activity in adulthood (Weisberg, 1993). The test was later refined as the Torrance Test for Creative Thinking (Torrance, 1962), which showed a moderate level of predictive value (Torrance, 1988). Divergent thinking, however, was soon considered an inadequate test for creativity, with critics arguing it measured only the amount of creative ability an individual possessed and "may unnecessarily restrict a fuller understanding of human creativity" and its underlying mechanisms (Mayer cited in Sternberg, 1999, p. 454).

Building on the tests for divergent thinking pioneered by Guilford and Torrance, cognitive psychologists placed an emphasis on the more general mental processes involved in the creative act. Their experiments on the thought processes used when subjects engaged with creative tasks grew from earlier, untested models for creative thinking, including Freud's (1931) work on unconscious and conscious processes and Koestler's (1964) theory of bisociation, where the unconscious synthesises seemingly unconnected ideas.<sup>2</sup> Although these models of creative cognition, including Ward, Smith and Finke's Geneplore model (Ward et al. cited in Sternberg, 1999), involve multiple complex mental processes such as memory retrieval, synthesis and analogical transfer, their value lays in rejecting the notion that creative works are the product of a mind with special mechanisms for thinking. Instead, they linked creative and non-creative thinking on a single scale of creativity: the optimal functioning, number and combination of processes used "merely increases the likelihood that a creative idea or product will result" (1999, p. 193).

Creative thinking, however, was not the only focus for psychological testing of creativity. Researchers, exemplified by MacKinnon (1965; 1966), also sought to isolate those personality traits characteristic of creative people across a range of professions. In his influential study of architects, MacKinnon identified three main areas of

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<sup>2</sup> See Weisberg (1993), for example, for a summary of the studies that refute and disprove these and similar theories.

personality study that relate to creativity. In the first area, socialisation, MacKinnon (1965) found highly creative subjects scored low on self-control, responsibility and conformity. They were generally introverted and socially withdrawn, but usually dominant within those few social interactions they experienced. The second area of the creative personality, complexity of psychological development, was revealed in high scores on scales of flexibility, openness to experience and ambiguity, curiosity, intuition, interest in multiple fields and a preference for chaotic aspects of the world. MacKinnon (1966) also found male subjects scored highly on a femininity scale, although this was unrelated to homosexuality or effeminate appearance and behaviour.

According to MacKinnon (1966), for some creative people the balance or complexity of traits can only be arrived at after considerable “psychic stress and turmoil” (p. 154). Anxiety, conflict and psychopathological (or abnormal psychological) traits belong to the third area of the creative personality presented by MacKinnon (1965), psychological health and adjustment. Although studies have shown an unusually high incidence of psychopathological traits in creative people (see, for example, Barron, 1963; 1969), very few have addressed whether these were innate or adopted as a result of socialisation into a particular profession. In order to address the questions left unanswered by both personality and creative thinking studies, research was required that went beyond psychometric pen-and-paper testing.

### **Biological studies**

The biology of creativity has been explored from several areas, most notably Galton’s earlier work on the heritability of genius, which compared creativity to inherited physical features such as eye colour or height. More recently, cognitive neuroscience has explored the functional aspects of brain regions during creative activity, as well as the correlations between the brains of various creative people with varying levels of success (see Martindale cited in Sternberg, 1999, for a summary of these studies). However, given the confined spaces and restricted movement of the brain scanning and imaging devices, these studies are often limited to performing simple verbal or psychometric tests to record brain activity, forms of testing shown earlier to have little predictive value.

The study of creativity and the brain has also been conducted at the bio-chemical level, examining the effects of introduced substances on the natural chemical balance and function of the brain. Contrary to popular mythology, most studies show drugs actually decrease creative performance. As part of a larger study lasting from 1954 to 1962, for example, Janiger (1999) gave doses of LSD to a group of artists and asked them to paint a picture. Although the artists reported “original insights, fresh perspectives and novel, creative ways to express themselves through their art” (p. 6), evaluation by an art expert showed their technical abilities had actually decreased. Similar results were found in studies using marijuana and alcohol (see, for example, Block et al., 1992; Nash, 1962). That these substances have any effect on creativity indicates that creativity research cannot just be studied at the level of the individual. Environmental factors must also be the subject of research if a more complete picture of creativity is to be found.

### **Social and cultural influence**

In attempting to discover the external factors that make people creative, psychologists such as Simonton (cited in Sternberg, 1999) and the Goetzels (Goertzel & Goertzel,

1962) conducted in-depth biographical or historiometric studies of eminent individuals. By quantifying or analysing the real-life social and environmental conditions under which creativity developed in each case, certain events and environments were found to be common to a majority of creative individuals, including birth order, trauma, home environment and family background of creative individuals. These and other studies on the family group as a major social influence highlighted that creativity, like most human acts, cannot occur without context. Indeed, individuals are seen to inhabit multiple social milieux that may be conducive (or unconducive) to creativity at any one time.

Research on the broader societal contexts of creativity has focused on areas such as geographical and historical location and political and economic stability. In response to Galton's work on hereditary genius, Candolle (cited in Simonton, 2003) was one of the first to study why nations differed so radically in terms of scientific innovation and prominence. Comparing national attributes, Candolle argued favourable societal conditions for the emergence of scientific creativity include, among other factors, a positive public opinion of science, a large leisure class, freedom for intellectual inquiry, a largely independent education system, an influx of intellectual immigrants and a close proximity to other cultural centres.

A changing political environment was also seen to influence the emergence of creative individuals. Surprisingly a large number of studies of the political climates in various periods and nations have shown that, rather than inhibiting creativity, conflict and instability may nurture creativity (see, for example, Sorokin, 1968). The redirection of economic resources to military pursuits, however, may adversely affect the emergence of creativity in a particular area. Rather than general economic prosperity, research showed it was a society's actual investment in areas like the arts and sciences that provides the necessary time and financial freedom to produce creative products or ideas (Kavolis, 1964).

### **Multiple components**

From the research shown above, we can see a large variety of social and cultural factors that potentially influence the creative process in any number of complex ways. What is problematic with these studies, however, is that not all individuals in these particular social groups or cultures were creative or achieved eminence in a particular field. Context alone, then, cannot adequately account for creativity but neither can studies that focus solely on individual psychology or biology. As with media effects, a trend has developed that shows researchers need to investigate multiple components and the complex ways they interact in order to present a clear and complete picture of creativity.

Several multi level componential studies of creativity have emerged, including Csikszentmihalyi's (cited in Sternberg, 1999) view of creativity as a complex system of interaction between an individual with their own unique psychology and biology, a cultural domain of knowledge and a social field of experts. As with other componential studies of creativity (see, for example, Amabile, 1983; Sternberg & Lubart, 1996), this perspective accounts for the influence of an individual's innate or biological advantages and their personal experiences and development as well as the influence of the range of contexts involved in the socio-cultural processes of learning, support and judgement necessary for creativity to occur.

## **Limited studies of media effects and creativity**

Unfortunately, very limited numbers of studies have been conducted that deal with the multiple components involved in both media effects and creativity. The bulk of research into the media's influence on creativity has been conducted on children using short-term exposure to a single media text and basic creativity measurements with often contradictory results. Greenfield et al. (1981), for example, found children finished a story in a more imaginative way after radio exposure than television exposure. Using the exact same media texts, however, Runco and Pezdek (1984) found no difference between children exposed to radio or television when measured using one of the Torrance tests for creativity. Such research largely ignores each child's long-term media exposure and creative ability prior to the study, as well as other contextual factors such as home-life, education and the laboratory conditions of the study itself.

More recently, Hutton and Sundar (2008) tested the emotional effects of a physical video game (Dance Dance Revolution) on university students' creativity, measured using the Abbreviated Torrance Test for Adults. They found a correlation between arousal (degree of physical exertion) and valence (positive or negative feelings), showing both highly aroused and positive players and their low arousal/negative valence counterparts had the highest levels of creativity. Although this study presents interesting implications about the emotional elements of different types of media and their impact on creativity, like the child studies mentioned previously they consider neither longer term media use (particularly previous experience with physical and non-physical video games), levels of creative thinking prior to the study nor other contextual factors that may have impacted on each participant's creative abilities.

Coming closer to the ideal componential studies of media effects and creativity is the work of McIntyre (2004; 2006) on popular music songwriters and Paton (2009a; 2009b) on Australian fiction writers, both using Csikszentmihalyi's model of creativity. Although exploring creativity more generally, these studies each investigated media use as one of many components involved in the creative process. Long- and short-term use was found to be an important factor in terms of stimulating a desire to create, learning how to write songs or novels, being aware of existing texts, as well as generating ideas for future works and helping to solve problems in current works-in-progress.

## **Future work**

In order to effectively answer the questions presented earlier about the potential for different types of media use to affect adult creativity in different ways, it is necessary to first overcome the limitations of previous studies and to then, as with the work of McIntyre and Paton presented above, address the multiple components that may be at work in any media influence on creativity.

In ongoing research, we will be using a combination of quantitative and qualitative techniques to examine leisure media effects according to traditional (Torrance Tests) and componential (social judgement) measurements of creativity, also testing for correlations between the two measurements. Further, we will address the relationship between media use in leisure time, creativity and additional factors such as family background, training and exposure to particular contexts. Hypotheses for the project include:

- H1 Psychological tests for creative thinking do not predict/indicate creativity activity
- H2 Participants who score high on measures of creativity will have moderate levels of media use
- H3 High levels of media use will impact negatively on creativity
- H4 Frequent use of media type will indicate area of creativity
- H5 High levels of creativity will be accompanied by other influential factors (such as family background or training)

Ultimately, we aim to demonstrate a synthesis of the existing research while providing further insight into both creativity and media effects.

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