

## The ‘Mozart Effect’: A Sociological Reappraisal

In 1993, the ‘Correspondence’ section of *Nature* published a brief report, by cognitive psychologists Frances Rauscher, Gordon L. Shaw and Katherine N. Ky, signalling a statistically significant increase in undergraduate students’ performances on one task of the Stanford-Binet Intelligence test, for subjects who had listened first to the *Allegro Con Spirito* of Mozart’s Sonata for Two Pianos in D Major (K.448). The improvement was restricted to spatio-temporal reasoning abilities, and the effect did not last longer than fifteen minutes.

In the academic world, Rauscher *et al.*’s results triggered scepticism, but also considerable interest; and thus began an international search for what was soon referred to as the ‘Mozart Effect’. Studies appeared in the pages of neuropsychology, psychology of music and psychology of education journals, some failing to obtain similar results (Steele, 1999b; Hallam, 2000; McKelvie & Low, 2002; Crncec *et al.*, 2006), others finding evidence for the effect of listening to Mozart’s music – among other pieces – on adults’ and children’s performances in spatio-temporal reasoning tasks (Thompson *et al.* 2001; Ivanov and Geake, 2003; Schellenberg *et al.*, 2007). A grand finale took place in 1999 where the question had been born, in *Nature*; Christopher Chabris’s meta-analysis of experimental studies from the previous five years yielded an overall negative result (1999). In the following decade, there would be further efforts to prove or disprove the ‘Mozart effect’, but it was clear, by the late 2000s, that few scientists were still pursuing that elusive aim.

Yet the 1993 Rauscher *et al.* article had a lasting impact beyond scientific publications. Immediately picked up by the media, the potential existence of a ‘Mozart Effect’ triggered, in

the United States, an interest ‘nothing short of phenomenal’ (Bangerter and Heath, 2004: 609). In newspapers and magazines, this topic ‘surpassed interest in other [scientific] reports by an order of magnitude’ (*id.*: 610) for over a decade. Twenty years later, the ‘Mozart Effect’ remains lucrative: entrepreneur Don Campbell, who trademarked the phrase in 1997, sold until his death in 2012 self-help books, parenting manuals and music compilations purporting to harness the power of classical music to enhance cognitive abilities in children and adults (Campbell, 1997, 2000).

The ‘Mozart Effect’ was a sociocultural and scientific phenomenon of tremendous magnitude; yet it remains under-researched from a sociological perspective. Adam Bangerter and Chip Heath’s article (2004) is so far the only extensive study of the rise and decline of the ‘Mozart Effect’ as ‘scientific legend’ – namely ‘widespread beliefs... derived from science that diffuse and stabilize in lay culture’ (2004: 606). I propose here a reading of the ‘Mozart Effect’ closer to a *post-mortem* dissection of its components. The ‘Mozart Effect’, I suggest, benefited from its timely alignment of several elements which were likely to attract popular attention in the United States in the 1990s. It connected the emerging influence of neurological research in education and policy with the ongoing interest, in 20<sup>th</sup>-century America, for the construct of ‘intelligence’ (specifically in childhood), and the related construct of child giftedness. Its appeal was enhanced by the mystique of ‘high art’ in an age marked by the increasingly blurry status of ‘canonical’ musical taste as social marker. Furthermore, its commercial potential was immediately exploited, giving rise to a grand narrative, imbued with magical thinking, that qualities inherent to Mozart’s music could be appropriated through passive listening. At the prow of the phenomenon stands the figure of Mozart, whose role as symbolic ‘glue’ for these different facets will be explored thoroughly.

**This is your brain on Mozart**

I, George Bush, President of the United States of America, do hereby proclaim the decade beginning January 1, 1990, as the Decade of the Brain. (Presidential Proclamation 6158, 1990).

Rauscher *et al.*'s brief report landed in *Nature* at a time when its focus on the enhancement of brain processes was concurrent with popular, media and political concerns. An official declaration by President Bush in 1990 had signalled a political shift towards neuroscientific research and the enhancement of 'public awareness of the benefits to be derived from brain research'. This move mirrored a gradual return, in social and political sciences, to searches for biological causes in the formation of the mind and as explanations for human behaviour, against the constructivist paradigms of the seventies and eighties (Rose, 2013) – a move David Wastell and Sue White disparagingly term 'neuromania' (2012: 399).

The budding fascination for neuroscience was palpable in both scientific and popular understandings of the 'Mozart Effect' in the 1990s. Certainly, no claim was ever made by scientists about Mozart's music improving general IQ scores, but Rauscher *et al.* hypothesised that it could have an enhancing effect on regions of the brain involved with spatio-temporal reasoning, basing the suggestion on EEG data (1995). Other researchers proposed that such an effect must be due primarily to arousal or to an improvement of participants' mood (Nantais and Schellenberg 1999). To disprove this hypothesis, Rauscher, K. Desix Robinson and Jason J. Jens designed another experiment (1998). In their Wisconsin laboratory, thirty rat pups were born having heard K.448 on loop for the past three weeks of their foetal lives, twelve hours a day. They would hear the same eight minutes and twenty-four seconds of music for another sixty days, before undergoing the test for which they had been bred: navigating a plastic maze towards a goal box full of food. In another room, thirty other rats had been

similarly exposed to music *in utero* and *post-partum*; for them, the sole soundtrack to their early existences had been Philip Glass's minimalist *Music With Changing Parts*. A control group made of another thirty pups had been purposefully deprived of music. That experiment was, it appears, conclusive: Mozart-primed rats found the goal box faster and with fewer mistakes than the other two groups. The researchers' intention was to demonstrate the effect of listening to Mozart's music on brains unburdened by cultural prejudice or aesthetic appreciation. This reasoning was enthusiastically picked up by the media, which largely portrayed the 'Mozart Effect' as a neurological process.

In parallel, the 'Mozart Effect' quickly became associated with the developing brains of young children. As Bangerter and Heath demonstrate, the 'Mozart Effect' became disproportionately reported in the media as linked to early childhood education: 'from 1997 onwards, more [newspaper and magazine] articles mentioned infants than college students' (2004: 618). This is striking given that the 'Mozart Effect' was never tested on babies. At first, scientific articles on the 'Mozart Effect' only used undergraduate participants; some researchers then attempted to test the 'effect' on children and teenagers (Hallam, 2000; McKelvie and Low, 2002; Crncec *et al.*, 2006). Yet popular notions of, and political measures inspired by, the 'Mozart Effect' were principally concerned with early childhood. Governors of Michigan and Georgia notoriously passed laws to provide parents of newborns with CDs of classical music, and to make state-funded nurseries play classical music to infants.

This slippage corresponded to a general interest for early childhood education in relation to brain research in the 1990s. As the 'Decade of the Brain' drew to a close, educational theorist John T. Bruer published a controversial critique (1999) of what he saw as mystical premises behind economic and political investments into the first three years of life: the notion that early years are not only a period of intense brain formation, but also the *most crucial* time for it; and that, should toddlers be given the right type of stimulation, this would

significantly improve later opportunities. Bruer denounced these ideas as imbued with magical thinking, conveniently packaging for the general public a scientifically-validated dream of long-term solutions to difficult sociopolitical issues.

They were, however, undeniably appealing ideas, and the ‘Mozart Effect’, situated by scientists and then by the media at the intersection of brain research and early childhood education, was ideally positioned to harness their appeal. The ‘Mozart Effect’ was also tapping into a related concern in late-twentieth-century America: gifted education and the search for intelligence-enhancing methods in children.

### **Child giftedness and the construct of intelligence in America**

The United States can be considered the cradle of gifted education. The history of modern constructs of giftedness and intelligence begins at the end of the nineteenth century; with Lewis Terman, in the early 1920s, intelligence tests began to be democratised and to serve political interests, in what Roblyn Rawlins terms ‘the institutionalisation of intelligence testing’ (2002: 101; see also Sternberg, Jarvin and Grigorenko, 2011 for a recent account of the construct of ‘intelligence’ in the United States). The term ‘gifted’ was coined to correspond to the upper end of the Intelligence Quotient measured by Terman’s Stanford-Binet scale (above a score of 135).

The United States’ particular receptiveness to theories of giftedness evolved alongside an increasing political interest in identifying and providing special education to gifted children throughout the 20<sup>th</sup> century. In the 1950s, technological competition with the USSR triggered concern that the United States were failing to raise children with superior intellectual, academic and creative abilities (Kaufman and Sternberg, 2007), leading to heightened interest for ‘intelligence’-nurturing early childhood education. In 1972, a report by

US Commissioner of Education Sidney P. Marland demanded an increase in the provision of gifted education, and provided a definition of giftedness encompassing ‘general’, ‘scientific’, ‘creative’, ‘leadership’ and ‘psychomotor’ abilities. Despite the evolution from academic-focused definitions to a broader understanding of giftedness (a shift from ‘conservative’ to ‘liberal’ conceptions in Joseph Renzulli’s words, 1978), there is still an aspiration for this construct to remain measurable and ‘educable’. The notion that giftedness is a social and political construct only began to emerge among researchers in the 1980s. In the 1990s, in scientific discourse and *a fortiori* in popular culture, child giftedness was still very much conceived of as a *thing*, measurable and requiring tailor-made educational practices.

There is an intrinsic contradiction in the construction of giftedness in the United States. On the one hand, giftedness is essentialized, through what Gabriel Mugny and Felice Carugati call ‘ideologies of giftedness’: popular notions of giftedness as innate, leading to an “‘astonishing” or not easily explicable existence of differences of intelligence between individuals’ (1989: 48). However, the emphasis on special education and the proliferation of para-educational enterprises geared towards cultivating giftedness points at a constructivist belief that any child can be improved by the right stimuli. See, for instance, the description of the ‘Institutes for the Achievement of Human Potential’ by Richard Norton and Glenn Doman, based on the premise that ‘most children are capable of functioning at the level which is called gifted’ (1982: 249). Their methodical approach to intellectual potential epitomises the ongoing effort, in the second half of the 20th century in the United States, to ‘unlock’ giftedness not in just children who appear to possess ‘it’ innately, but in all others.

Child giftedness is thus wrapped in a contradictory mystique; constructed as both inexplicable and cultivable, it hovers uneasily between the discovery of ‘natural’ qualities and the optimistic belief that it can be nurtured. This mystique contributed to the ‘Mozart Effect’, partly because it matched the symbolic appeal of the figure of ‘gifted’ child Mozart.

## **Childe Mozart's Pilgrimage to America**

No analysis of the 'Mozart Effect' truly discusses the choice of composer; perhaps Mozart's name has been perceived as interchangeable with that of any other musician that Rauscher *et al.* could have chosen in its place. But by picking Mozart, Rauscher *et al.* were tapping into a well-established cultural and historical fascination for a composer who, in the 1980s and 1990s, was enjoying even more prominence than usual: Milos Forman's successful biopic *Amadeus* had come out in 1984, and the Mozart bicentenary had been celebrated in 1991. Above all, Rauscher *et al.* were invoking a figure with specific legendary status, unlike any other classical composer, resting on a fascination with child precocity.

Mozart owes much of his appeal to the fact that he was composing from a very young age. For French musicologist Georges Starobinski, Mozart is the only composer who 'comes to our minds spontaneously as a young child' (2006: 343<sup>1</sup>), unlike the similarly precocious Handel or Liszt. There was no explanation, in Rauscher *et al.*'s original study (1993), as to why Mozart had been selected, but a later publication clarified this decision (1995). In that study, which presents hypotheses on the neurological processes at work in the effect of Mozart's music on the brain, Rauscher *et al.* note, in passing: 'We chose Mozart since he was composing at the age of four. Thus we expect that Mozart was exploiting the inherent repertoire of spatial-temporal firing patterns in the cortex' (1995: 46). There is no further support for this claim; it is not mentioned whether any study has ever shown that children of that age do indeed 'exploit' an 'inherent repertoire' of brain processes. But the offhand connection between Mozart the composer and Mozart the 'child prodigy' mirrors a common oscillation, in both lay and academic perceptions of this particular composer, from admiration for the adult's oeuvre to entrancement for the child's giftedness.

The emphasis on Mozart's 'inherent repertoire' is a modern spin, in brain research jargon, on the popular notion that Mozart displayed a kind of quintessential intelligence. Maynard Solomon, one of Mozart's principal biographers in English, narrates the amazement triggered by 'miraculous' child Mozart in adults who had come to see him (1991: 94). The web of cultural references associated to Mozart by contemporaneous adults admirers evoke religious devotion, both Christian and pagan. Young Mozart, Solomon shows, was explicitly likened to legendary child heroes, in particular Christ, Hercules, Hermes and Eros. He was considered, in Solomon's words, 'to represent a superlative example of the child's unlimited potentiality for creative and moral development, which could be unlocked by enlightened upbringing' (1988: 4). Consequently, his 'small body exemplified the infinite perfectibility of the child and, by inference, of mankind' (id.)

The reference to 'enlightened upbringing' and to 'perfectibility' links to a central feature of the myth surrounding child Mozart: the importance of his parents, especially his father Leopold Mozart, in the construction of the child's talent. Just as his contemporaries extolled the 'miraculous' child, they also praised Leopold Mozart for accompanying his development in a methodical and apparently non-violent manner (Solomon 1988: 7). This fascination continues: in 1994, a report announced the creation of the *Internationale Leopold Mozart Gesellschaft* for the celebration of 'a man of the Enlightenment, who... educated his son in strikingly new ways, based on novel theoretical concepts' (1994: 564).

Those 'novel theoretical concepts' correspond to a shift in educational practices at the end of the 18th century, indeed inherited from the Enlightenment, but pre-empting Romantic interest for childish spontaneity. Best illustrated by Jean-Jacques Rousseau's *Emile* (1762), published a decade after Mozart's childhood, this educational style was characterised by experimentation and playfulness and by increased focus on the child's needs, attempting to nurture rather than control individual expression<sup>ii</sup>. Peter Kivy, in his study on child Mozart 'as



aesthetic symbol', notes the importance in Leopold Mozart's teaching method of 'the association of music and play... – so, at least, the Mozart legend would have it' (1967: 250). Guided by his father and by other musicians, young Mozart improvised for hours, challenging adults to prodigious musical jousts (Starobinski 2006: 345).

The Mozart legend, as Kivy terms it, is thus double-faced: firstly, it evokes a 'natural' child, whose talent springs from inspiration – this is the notion expressed less romantically by Rauscher *et al.* with the 'inherent repertoire of spatial-temporal firing patterns'. Secondly, the legend foregrounds Leopold Mozart as benevolent, scientifically-minded adult mentor and protector, who nudged the 'miraculous' child towards success. Neither entirely 'natural' nor entirely 'fabricated', child Mozart became a symbol for essential childness nurtured by purposeful parenting, encouraging experimentation and play.

Mozart's characteristics as central figure of the eponymous 'effect' align with issues and questions germane to education (of gifted children, particularly) at the time of publication of the Rauscher *et al.* experiment. Another crucial aspect of the importance of Mozart in the 'Mozart Effect' is the fact that his music hovers in an ambiguous, 'classless' zone, between mass musical culture and 'highbrow' taste, as I now develop.

### **Classy, classical or classless? Mozart's liminal cultural status**

Mozart and his music have always flirted with popular culture. As a child, Mozart's impresario father engineered the mass appeal of his son's talent. After his death, Mozart's ever-growing influence, entwined with that of other classical composers such as Beethoven, benefited from the rise of mass-marketed musical culture<sup>iii</sup>. Musicologist William Weber (1994), investigating the evolution of musical taste in Europe between 1770 and 1870, argues that the emergence of mass culture in this period was what secured 'classical masters' their

posterity. Mozart, Beethoven, Haydn, Handel, Schubert, now risen to uncontested ‘musical sainthood’ (Weber 1994: 175), were largely promoted as such by a ‘forthright new brand of entrepreneurship’ linked to ‘musical merchandising’ (*id.*:180) in the late 18th century. Their works, out of copyright, were cheap to buy and perform, and were considered safe values. From lithographs to medallions and statuettes, performances of these composers’ works were already aided by merchandising.

The emergence of a musical mass culture thus helped build a pantheon for those ‘classical masters’. However, this ‘sacralization’, to cite Lawrence W. Levine (1988), eventually gave rise to a subdivision of the music market into classical music, targeted at the upper- and middle-classes, and contemporary music with mass appeal. After the Civil War, as Ralph P. Locke analyses, the rise in income and education in the United States led to ‘an ideology of [high] art as transcendent or sacred’ (1993: 151). Locke deplores the exclusive assumptions which subsume the categories of ‘classical music’ and ‘popular music’. In America, he argues, the typical concert-goer or classical music amateur has come to be perceived as stereotypically pretentious or insincere (*id.*:149); there has been, in the 20th century, a shift from ‘sacralization’ to ‘mystification’: the popular notion that classical music creates rituals which unify the elite.

Classical music, in the United States, is thus associated with a both upper-class and intellectually elitist fringe. However, some classical music – and particularly Mozart’s – occupies an interestingly ambivalent space. On the one hand, classical music in popular culture signals and mocks upper-class pretentiousness. Melanie Lowe, in a wide-ranging study of uses of classical music in popular sitcoms and films, explores how certain classical tunes – she takes the specific example of Mozart’s – have become ‘a cinematic social code for the elite class’ (2002: 112), and more normatively for ‘snobbery’. Lowe looks at four occurrences in television series of Mozart’s ‘Little Night Music’ as background tune for

scenes featuring intellectual or openly elitist characters. ‘For the average American’ (*id.*: 102), Lowe argues, Mozart’s famous tune has become enmeshed within a network of film and television references. Cultural associations deriving from this simple musical cue are mostly negative, pointing at the upper classes as patronising and artificial. The auditory signature of the intellectual elite, Mozart’s music has become a recognised symbol for its closed-mindedness and its superiority complex. The interpretation could seem clear: ignored or derided by a majority of the American population, Mozart has been confiscated by the upper-class and turned into an epitome of bourgeois taste.

On the other hand, the omnipresence of such music – and again, particularly of Mozart’s music – throughout popular culture cultivates familiarity. A reverse argument could thus be made: that Mozart’s music, turned into a social jingle throughout popular culture, has *secured* a place in popular culture: its new modes of diffusion keep it safely within reach. Mozart has found in American popular culture an in-between status; though plagued by social prejudice, and though it bears the mark of the ‘mystifying’ dimension of social and intellectual elitism, it remains integrated within the fabric of popular culture. In this ambiguous aesthetic space, Mozart’s music is thus a very *present* form of ‘high art’. In Joseph Horowitz’s analysis, using the term coined by Dwight MacDonal, Mozart is ‘midcult’ (1992): both Mozart as legendary figure and Mozart’s music have mass culture appeal, tending to universality. This is offset by ‘the mystification of Great Art’, but this mystification is ‘itself a midcult precept – a central source of midcult’s high tone and easy appeal’ (*id.*: 2). In other words, albeit deleterious according to Lowe and Locke, the popular association of Mozart’s music with intelligence and the upper-class cannot be entirely devoid of aspirational power.

Horowitz’s analysis revolves primarily around Forman’s celebrated film *Amadeus*, which according to him manages the feat of ‘hybridization of mass appeal and snob appeal’ (*id.*: 1). This hybridization may have come largely from the genesis of the film itself;

*Amadeus* was a Hollywood adaptation of an award-winning play by British playwright Peter Schaffer (1979), itself drawn from a Pushkin piece. While this prestigious literary ancestry and its subject matter ensured the film an overtly ‘highbrow’ identity, the intense fictionalisation of Mozart’s life by Pushkin, Schaffer and Forman guaranteed its wider appeal, turning both Mozart and Salieri into tragicomic figures and emphasising the ill-fated destiny of the composer. It did so, importantly, by relaying the notion (popularised following Mozart’s death, in part by his sister Nannerl) that Mozart had been a petulant, needy and childish adult<sup>iv</sup>. As Norbert Elias notes, this myth of Mozart’s bibliography has led, throughout the centuries, to the tendency to ‘treat Mozart the artist as a kind of superman and Mozart the man with slight contempt’ (1993, 63). This portrayal might indeed be derogatory, but by perpetuating the myth of Mozart’s lewdness and clownishness the film implicitly saved the figure of the composer from the remote and snobbish grandeur of ‘highbrow’ taste, incarnated by the cold and judgemental Salieri.

Neither Hollywood blockbuster nor *film d’auteur*, *Amadeus* is criticised by Horowitz because of what he sees as a belittling of Mozart’s music. However, it could just as well be seen as an intellectually ambitious, yet accessible promotion of that music. This ‘hybrid’ aesthetic corresponds to a social evolution, in American society, towards a blurring of musical preferences in relation to socioeconomic status. In the mid-1990s, basing their findings on a 1992 national survey, Richard A. Peterson and Roger M. Kern (1996) made the influential statement that it was no longer empirically justified to state that high-status Americans were primarily consumers of so-called ‘highbrow’ art. Though they were indeed more likely to consume high art than others, they were also more likely to participate in all kinds of ‘low-status activities’ (*id.*: 900). The Bourdieusian model of aesthetic taste, which had predominated until then, was judged obsolete; Peterson and Kern offered to replace it with an

‘omnivore’ model of upper-middle-class taste, characterised by openness to a wide variety of musical, literary and artistic genres - ‘highbrow’ as well as ‘middle-’ and ‘lowbrow’.

This was the situation in the 1990s; later, the distribution of aesthetic preferences was further challenged. Chan and Goldthorpe, in 2007 in the UK, presented evidence for the ever-increasing interest of the upper-class in popular music, to the gradual detriment of classical music. Drawing from a 2003 national survey in France, sociologists Hervé Glevarec and Michel Pinet (2009) even announce the obsolescence of Peterson’s ‘omnivore’ theory; in the younger generations, they argue, little to no difference remains between upper-middle- and lower-class taste in music. Most importantly, very few people of any socioeconomic status listen to classical music; the number is dwindling so much as to make it unusable as sociological marker. ‘Univorous’ taste is no longer a negative characteristic, nor is ‘omnivorousness’ a sole feature of the upper-middle-classes.

The increasing difficulty in mapping preferences for musical genres with social class is important in understanding the ‘Mozart Effect’, because it nuances the possible analysis of the phenomenon in straightforwardly Bourdieusian terms. In Bourdieu’s *Distinction* (1984), aesthetic taste legitimates socioeconomic divides, according to a hierarchical model. In the case of music preferences, the top, corresponding to the upper-classes, features classical music, with various musical genres following through to the petite bourgeoisie and the working-class. This hierarchy is theorised by Bourdieu as naturalising aesthetic taste and hiding its connections to socioeconomic inequality. In Bourdieu’s analysis, the petite bourgeoisie, which does not have the economic capital nor the habitus to achieve bourgeois status, borrows external signs of distinction – bourgeois aesthetic tastes, behaviours and customs. From this perspective, the ‘Mozart Effect’ could be explained as a petit-bourgeois aspiration towards upper-class taste.

This explanation is only partly satisfactory, for both empirical and theoretical reasons. Firstly, as developed above, new models of aesthetic taste have been proposed in contradistinction to Bourdieu's, leaning on empirical data, and already relevant in the 1990s. But more importantly, the 'Mozart Effect', albeit *leaning* on a framework of musical preferences which can indeed be mapped onto structures of social class, cannot be said to truly form part of an education in bourgeois aesthetic taste. Rather than assuming the guise of an education in distinction (celebrating the bourgeois 'aesthetic of freedom', to quote Bourdieu), the 'Mozart Effect' openly asserted its utilitarian nature. Through music-listening, the associations of Mozart with social success and intellectual ability would lose their symbolic dimension and become *actualised*.

Though status aspirations cannot be discarded in analysing the phenomenon, I would analyse it as transcending, just like the status of Mozart's music itself, clear socioeconomic divides in the search for practical intellectual enhancement. In the process, the 'Mozart Effect' can be located ideologically as partaking in the de-aesthetisation of classical music in the late twentieth century, connected to the commodification of listening.

### **Mozart in the age of technological reproduction**

'The more reified the music, the more romantic it sounds to alienated ears,' states Theodor Adorno in 1938; 'just in this way it becomes "property"' (298). In his famous critique of what he sees as the 'regression of listening' in America, Adorno highlights a number of different phenomena which are found in the 'Mozart Effect' in exaggerated forms. For Adorno, music, from its inception, was always a battleground between convention-abiding and convention-breaking practices. However, under capitalism, the listener (of any musical genre) can only be socially acquiescent, for the nature of the work of art has

undergone profound changes; its social purpose and what it represents in economic terms have supplanted its aesthetic value, in a manner invisible enough as to make it *seem* like art preserves intrinsic worth. It is illusory, Adorno says, to believe there is any difference between the consumption of classical music and of popular music; both are manipulated by the culture industry to appeal to engineered consumer tastes. Culture becomes a commodity, and all social classes are engaged in its consumption. Of course, this does not mean that the class structure is erased in the consumption of works of art; what happens is what David Gattman calls a process of ‘unrecognition’ (1991: 426), whereby niches of aesthetic preferences and tastes obscure the unequal social makeup of a given society.

Adorno identifies, as a crucial element of the modification of listening in the twentieth century, the ‘atomisation’ and repetition of certain pieces of music, until the listener cultivates enough familiarity that s/he can *appropriate* them as commodities. This phenomenon derives in part from the technological possibilities of music reproduction and arrangements, geared towards isolating melodies rather than showcasing the totality of the work. For Adorno, the evolution is tragic: music has lost its purposelessness and its role as social destabiliser. Through music, listeners – consumers – always celebrate something else: their own money spent on the concert ticket; their music-playing device. Alongside music-listening, a ‘fetishization’ of the technical materiality of music develops – finding its climax, Adorno argues, in the cult for legendary violins, the prowess of which are barely audible to experts.

This is what Adorno denounces as the ‘romantic’ sound of ‘reified music’ in the above quotation; commodified, packaged, easily remembered and summoned, music appeals to the listener because s/he believes that s/he can, in this transportable form, make it his or her own and appropriate its qualities. It is ‘romantic’ in the weakest sense of the term: intensely centred on the self, and relying on a system of beliefs as to the numinous qualities of the

object. Music becomes an advertisement for happiness, for self-aggrandizement, for status, or for increased productivity, implying a listener porous to the ‘magic’ of the musical phrase.

Just as Rauscher’s laboratory rats heard the same piece of music by Mozart on loop for twelve hours a day, Adorno’s Americans are subjected, he says, to endless repetitions of the same musical pieces (1938: 294). There is something mantra-like about this consumption of music, and indeed both scientific and popular enactments of the ‘Mozart Effect’ illustrate the logical, though extreme, conclusion of processes of atomisation of music in contemporary times, and its gradual de-aesthetisation.

The original Rauscher experiment used, for reasons unspecified, the first movement of Mozart’s sonata K.448 for two pianos. Since then, those eight minutes and forty seconds have been reused in many other scientific experiments: in her meta-analysis, Lois Hetland (2000) notes that 78% of studies on the ‘Mozart Effect’ used that allegro. Other music, used by researchers investigating whether it would produce similar effects to Mozart’s, has included pieces by Schubert, Mendelssohn, Yanni (a contemporary Greek composer), and other Mozart pieces. Only the vaguest indications are given by researchers as to why certain pieces were chosen– note McKelvie and Low’s declaration that ‘According to our judgment, and faculty in our department, Mozart’s Sonata... and Aqua’s *Cartoon Heroes*... are polar opposites in terms of musical similarity’ (2006: 252). Most of these pieces lasted under ten minutes; it is rarely clear where cuts were performed. In a rather dystopian illustration of Adorno’s critique, scientific experiments on the ‘Mozart Effect’ converged to turn their chosen pieces of classical music into auditory cues with little consideration for their relation to a totality: those musical phrases were used as scientific abracadabras.

Music, there, is barely still music. French musicologist Michel de Coster analyses the rise of music selections for easy listening, or as professional and personal management tools for ‘increasing efficiency of workers through music’, or helping mentally disabled people (*id.*:



266). The ‘Mozart Effect’ exaggerated this treatment of music, with tremendous impact. As Lowe notes, ‘the influence of the Mozart Effect on the current situation of classical music in contemporary American culture can hardly be overstated’ (2002: 119) – because through it classical music became annexed by scientists, politicians, journalists and educators as universal panacea. Though this superficially benefited music education, the ‘Mozart Effect’ was directly adverse to its interests. Educationalist Stephanie Pitts deplores:

Disturbingly, if future research were to demonstrate a reliable and sustainable connection... the logical conclusion would be to replace current forms of musical education with the specific and limited tasks carried out in these experiments. Music education... would be planned and evaluated according to non-musical criteria. (2001: 55)

The ‘atomisation of listening’ and general lack of musical understanding in both popular culture and scientific and political spheres, exposed by the ‘Mozart Effect’, is more revealing still if one looks at its never-told side-story: the ‘Philip Glass Effect’. Many experiments, inspired by the Rauscher rats experiment, used Glass’s ‘Music with Changing Parts’ as ‘nonenhancing’ – namely, as stimulus that would not contribute to improving the subjects’ intellectual performances. It is enlightening to reflect on the reasons given by researchers for selecting this composer. Hetland notes that Glass’s music was ‘hypothesized not to enhance spatial performance because it was so predictable’ (2000: 115). Rauscher specifies that they had to ascertain that the *rats* exposed to Glass would not be under ‘stress’ induced by this stimulus (1998: 431). Steele *et al.* announce that Glass’s music was described by subjects as ‘repetitive’, ‘obnoxious’ and ‘grating’, and the researchers predicted ‘that the Glass selection would produce stronger indications of unpleasant mood relative to the Mozart sonata’ (1999b: 367). Kristin M. Nantais and E. Glenn Schellenger, attempting to disprove the ‘Mozart Effect’, note, with reference to Glass, that ‘Minimalist and repetitive music might also induce

boredom or low levels of arousal, much like silence' (1999: 370). Thus Glass, throughout the 1990s, is quietly established as Mozart's nemesis – as the anti-hero of the 'Mozart Effect'.

Adorno notes that 'atomistic listeners' are opposed to music which does not have the comfortable stability of the pieces they have become accustomed to; they denounce them as "‘intellectual’ or absolutely dissonant' (1938: 306). That Glass's music should sound dissonant to ears unfamiliar with it is unsurprising, but it is neither 'predictable' nor 'repetitive'; it relies on irregular alternations of different rhythms, stretching the musical bar through additions traditionally disallowed in classical music. The side emphasis on Glass as creating an opposite effect to Mozart may be connected to the difficulty for Glass's music to be 'reified' into rememberable melodies and short formats, on which the music industry relies, and which scientific studies on the 'Mozart Effect' implicitly supported.

### **Contaminated by Mozart: Magical thinking in the 'Mozart Effect'**

The different aspects of the 'Mozart Effect' dissected above coalesce into a grand narrative, stamped with the legitimacy of scientific research: that listeners – in particular, children – can appropriate certain desirable qualities through the ritualised consumption of 'reified' music. It is, above all, a consumerist fantasy. Links between consumerism and magical thinking or fetishism have been clarified in recent decades by consumer researchers. In the late 1980s, Roy Ellen's work on product fetishism (1988) and Russell Belk's studies on the interactions between magical thinking and consumer behaviour (1988, 1989) foregrounded the extent to which the purchase of specific possessions shares characteristics with ancestral forms of magical thinking explored by anthropologists.

Ellen's discussion of fetishism in relation to consumer research (which recapitulates anthropological, Marxist and psychoanalytical understandings of the term) offers a list of

‘general underlying cognitive processes at work in the generation of fetishes’ (1988: 219). The first he labels concretisation: the process through which a concept finds itself expelled from the realm of the abstract into an object. Fetishes, Ellen notes, are often metonymic – relics of saints refer to whole bodies. There is also in fetishism a conflation of signifier and signified: objects are treated as if they had meaning in themselves, rather than as referents. Finally, Ellen highlights the ambiguity of power relations in the interaction between person and fetish. As a tangible object, the fetish is a tamed abstraction which can be easily transported and manipulated; but it is always unclear to what extent the subject is in turn manipulated and transformed by the fetish.

The fetishization of material possessions leads to a perceived enhancement to one’s sense of self when coming into contact with such objects. Belk calls this phenomenon ‘contamination’: the impression that the consumption or possession of an object will help one incorporate or assimilate the qualities (or indeed faults) that it symbolises. But many different objects, Belk notes, are nowadays endowed, through a process of magical thinking, with ‘contaminating’ power. Consumers may perceive, for instance, that the possession of antiques endows one to the glory of the past (1988: 149). Contamination allows for what Belk labels ‘self-extension’, whereby possessions appear to extend our sense of self; a phenomenon encapsulated by the collapsing of *having* into *being*, which Belk perceives as ‘perhaps the most basic and powerful fact of consumer behavior’ (*id.*: 139).

A later piece of research by Karen V. Fernandez and John L. Lastovicka (2011) offers a clear illustration, in a musical context, of self-extension through the possession of fetishized objects. Adorno deplored the ‘cult of master violins’; Fernandez and Lastovicka’s study focuses on master guitars. Guitars having belonged to world-famous artists are contemporary fetishes, ‘a magical object of extraordinary empowerment and influence’ (2011: 278). Such instruments are perceived by amateur guitarists as contaminated by their illustrious past

players, and potentially contaminating new owners: such beliefs are based on ‘contagious magic’ (*id.*: 283) associated with relics.

However, Fernandez and Lastovicka are equally interested in the fact that *replicas* of master guitars, and other ‘mass-produced fetish objects’, function similarly. Despite the wider availability of such products, they are attributed analogous power: ‘contemporary consumers use magical thinking... to transform mass-produced replicas into fetishes’ (*id.*: 279). Thus there is a self-extending dimension, given the right conditions, to certain mass-produced artefacts, which turns them into fetishes and activates magical thinking as their rarer originals would. The ‘right conditions’ are engineered by, in this case, instrument manufacturers.

The ‘Mozart Effect’ rests on a different kind of relic to master guitars, associated with its own brand of magical thinking – specifically metonymic – but also based on ‘contagious magic’. The grand narrative of the ‘Mozart Effect’ can be deciphered as such: Mozart’s music, validated by scientific research, became *in itself* a relic, a depository of Mozart’s *being* (particularly of his being a gifted child) which it was now possible to *have*, and to be *enhanced* by. The creation of CD compilations arranged and marketed so as to create a self-enhancing effect (focused here on intelligence) turned those objects into fetishes: portable, playable products believed to significantly improve, solely by contamination (passive listening), an aspect of the consumer’s self.

The particular emphasis on children as listeners to these Mozart compilations foregrounded, as detailed above, a Mozart-specific conflation of ideas between exceptional intelligence and child giftedness. The ‘Mozart Effect’ did not ‘catch on’ in popular culture as an enhancement of adults’ IQ (despite the scientific literature’s focus on adult subjects) because a powerful strand of the Mozart legend – *child* giftedness – overtook, so to speak, the specific interests of the scientific experiments.

The ‘Mozart Effect’ is also characterised by its ritualistic nature. Cele Otnes and Linda M. Scott argue that rituals are a central advertising strategy (1996); similarly the ‘Mozart Effect’ benefited, in both scientific and popular understandings of the phenomenon, from a strong emphasis on ritualisation in the consumption of Mozart’s music. Much ink was spilt over the exact procedure of Rauscher *et al.*’s original experiment. Rauscher (1999) invalidated criticisms by Steele (1999a) by arguing that none of the experiments presented as negative replicated the original design. Steele *et al.* (1999b) pointedly returned with an exactly faithful reproduction of the conditions of the original experiments, going to great lengths to respect the scientific ‘ritual’ of the 1993 experiment. In her meta-analysis, Lois Hetland (2000) shows that post-1999 ‘Mozart Effects’ experiments were particularly cautious to follow the steps clarified by Rauscher.

The tenuousness of the phenomenon led to a quasi-superstitious concern by scientists regarding procedure, and to the creation of scientific rituals involving Mozart’s music and other auditory stimuli. In a similar fashion, Don Campbell’s music compilations (such as ‘Mozart for Babies’) are accompanied by book-length instructions as to how to best harness the enhancing power of classical music. The ‘Mozart Effect’ was thus surrounded, both as a scientific phenomenon and as a commercial enterprise, by a ritualistic mystique which contributed to its success by cultivating magical thinking around it.

The scientific origins of the ‘Mozart Effect’ were largely responsible for this magical thinking. In their analysis of ‘the sacred and the profane in consumer behaviour’, Belk *et al.* (1989) insist that science is a key area of the ‘sacralization of the secular’, leading to aspects of consumer behaviour close in formality and in intensity to religious rituals. ‘Science,’ they state, ‘is considered the ultimate arbiter of truth in societies that venerate rational thought and causal explanations’ (1989: 9). The presence of scientific back-up, however flimsy or misunderstood, to the ‘Mozart Effect’ was a *sine qua non* condition of its success.

Equally important was the fact that the scientific research appeared to hint at an *immediate* impact of Mozart's music on the brain. This wish leans on the 'technological utopia', to quote Yannik St James *et al.*, which permeates consumer behaviour: the longing for immediate power in consumer goods, stimulated by advertising, 'and expressed in a proclivity for magical solutions to life's problems, that is, quick and low-effort gains' (2011: 636). Similarly, despite the tentativeness of much current neurological research, Nikolas Rose notes in a recent article that there is a growing tendency to perceive its findings as reliable and to overstate their consequences (2013). Through what Rose calls 'fantasies of omnipotence' (2013: 6), which give an illusion of control over the body, both popular and scientific perceptions of the neurosciences display the belief that the mind is perfectible (*id.*: 7). This 'somatisation' of the mind – the belief that specific inputs can actively modify brain patterns – was already subsuming 'Mozart Effect' research in the nineties.

## **Conclusion**

The phenomenal 'Mozart effect' benefited from the turn-of-the-century interest for scientific explorations of the brain and the enduring appeal of the motif of child giftedness in American society, and invested the modes of cultural consumption dictated by late capitalism and technological reproduction. Its popular and commercial success rested on the belief, cultivated by advertising, that certain possessions can confer positive attributes to those who come into close contact with them. The name of Mozart, with its accompanying mystique and blurry class connotations, acted as catalyst, causing Rauscher *et al.*'s rather unremarkable report to become one of the most discussed, but also one of the most wildly overblown, scientific experiments in contemporary society.

A great ‘fantasy of omnipotence’, the ‘Mozart effect’ efficiently built upon years of wishful neuroscientific research and its enthusiastic appropriation by the media. The ‘effect’ continues; despite their scientific unsoundness, ‘Mozart for Babies’ books and CDs still sell, and what was once an educational craze has turned into durable urban lore. Even today, articles still surface sporadically in the media, reminding parents and teachers of the possible impact of classical music on the young brain. It is easy to understand the charm of this simple suggestion. Superficially playing on parental anxieties about child-rearing, the ‘Mozart Effect’ proposes a painless solution to central educational questions, dispensing with the need to address, for instance, deeper sociocultural issues at the root of the unequal distribution of academic success among children of different socioeconomic backgrounds.

Analysing the success of a social phenomenon retrospectively is admittedly more comfortable than predicting its emergence; however, the two endeavours are not unconnected. Taken as a case study in the sociology of culture, the ‘Mozart Effect’ showcases the multifariousness of the circumstances which can turn an apparently unremarkable idea into a social, political and commercial phenomenon, and identifies ‘magnetic’ poles which are particularly likely to attract the attention of the general public – not least of which, children and their education. Such studies can also serve to highlight the elastic shapes and changing relations, under late capitalism, of the fields of science, education, art, and the media. Phenomena like the ‘Mozart effect’ do not just take advantage of a fortuitous alignment of circumstances, but, as noted throughout this article, lastingly modify in turn the different fields which have allowed them to grow. Unveiling the mechanisms of such ‘moments’ from a sociological perspective offers the possibility to identify them as they barely emerge, but such investigations come with their own ideological questioning – regarding, primordially, what (mis)uses could be made of them for the purpose of engineering similar phenomena.

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<sup>i</sup> My translation.

<sup>ii</sup> Leopold Mozart's educational method was in reality much less benign. Michael Howe (1999) estimates the number of hours of piano practice for child Mozart between three and six years old as 3,500. Leopold Mozart's motivations were also notoriously financial. Despite this, the 'Mozart legend' still rests on the sense of fascination elicited by Mozart as a child and as an adult. Einstein's name is perhaps the only one which equals Mozart's as a moniker for intelligence; unlike Einstein, though, Mozart is clearly associated to child giftedness. John G. Geake (1996) even turns it into an adjective, defining as 'mozart subjects' high-achieving young musicians.

<sup>iii</sup> See DeNora (1995) for an in-depth analysis of the many intersections between the 'Mozart myth' and the 'Beethoven myth', which supported one another with important commercial and cultural consequences.

<sup>iv</sup> The view of Mozart as immature adult has been very much revised in recent decades (see Elias 1993, Pesic 2001, Starobinski 2006).