

University of Groningen

## ADHD and the power of generalization

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DOI:  
[10.33612/diss.84379221](https://doi.org/10.33612/diss.84379221)

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2019

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*  
te Meerman, S. (2019). *ADHD and the power of generalization: exploring the faces of reification*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen.  
<https://doi.org/10.33612/diss.84379221>

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# Chapter 7

**ADHD, reification and the power of generalization**

Discussion and Conclusion

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## Introduction

The studies in this dissertation were based on the questions: how is ADHD reified in written discourse, and how often do these identified mechanisms of reification occur? In this concluding chapter, I will reflect on chapter one through six, provide an overview of reifying mechanisms –the faces of reification- and reflect on the more quantitative question: how often do they occur? In light of the “power of generalization”, I argue that generalization is a key mechanism for reifying and inflating the ADHD-concept.

Next, I will go on to further explore the notion of power in a broader sense. Reification is, along with Marx who helped coin the term, often filed under the sociological paradigm of conflict theory. I will reflect on conflicting interests of, amongst others, biologically-oriented science communities versus pedagogically-oriented scientists. This conflict perspective can help explain why outcomes of empirical studies regarding the ADHD-concept tend to be inflated.

However, I will also argue that a mere conflict perspective is insufficient to explain the exaggeration of biological research outcomes. It is not just due to narrow institutional interests or self-interest, but also because we have such high hopes for the biomedical perspective in contemporary society that we tend to inflate the findings and overlook weaknesses. From a functional sociological perspective, I argue that the psychiatric handbook (DSM) offers a normative framework that may help fill a void partly created by the decline of religion. As it was rationalism and science that eroded the audacity of religion, it is perhaps not surprising that the DSM is more rationalistic and scientific. Particularly the norms encapsulated in ADHD are deeply rooted in a Cartesian ideal –I think therefore I am- of human beings as rational, in control of their emotions and/or capable of ignoring emotions. We highly appreciate it if children can suppress their physical restlessness, irrespective of why these feelings are there.

Furthermore, I will hypothesize that the way clinicians and scientists are instructed to classify and study unruly and inattentive human behaviors using the ADHD-construct of the DSM urges them to objectify and disengage from children -rather than, for instance, gain their trust and search for motives- in order to understand them better. Particularly with the abundance of genetic, neuro-anatomic, -physiologic and -chemical studies that are then executed based on these classifications -rather than, for instance, narrative studies- we may lean towards detachment rather than engagement. Finally, I will reflect briefly on available alternatives from a pedagogical perspective for this disengaged stance.

### The faces of reification

During my work on this thesis, the Hoogman paper, a recent meta-study on ADHD and brain-anatomy –the largest to date-, was published in *The Lancet Psychiatry*. In chapter 2, I consider the conclusion and press release of this paper as examples of the power of generalization when it comes to the reification of ADHD. We sent a critical response to the journal and received a reaction, which I analyzed in chapter 2. The authors give a fiat to clinicians to tell individual “patients” that they have a disorder of the brain, based on mere group findings in relation to ADHD and brain size. They use many rhetorical devices and fallacies to avoid simply acknowledging that many with an ADHD classification do not and many without a classification do have some alleged “abnormalities” (which, as their own research shows, mostly catch up later in life). This makes brain anatomy merely one weakly associated factor in the complex etiology of ADHD and I argue it is highly stigmatizing and irresponsible to generalize and dichotomize the discussion by suggesting ADHD is a brain-disorder.

In chapter 3, with the help of several other researchers and students, I aimed to quantify how often generalizations such as in the Hoogman paper occur in academic textbooks used to educate our future professionals. Twenty-one out of 43 textbooks of our sample –almost half- discuss brain-anatomy in a generalizing fashion. They suggest that all those in the case group have smaller brains than average without “hedging” this generalization anywhere in the chapter. Additionally, only one chapter contained a cross-reference to a section that implicitly discussed the fact that many of such case-control studies use rigorously screened individuals in both case and control groups.

In chapter 4, I examined, again with the help of several others, our sample of 43 academic textbooks to scrutinize another pillar besides brain-anatomy: the alleged strong genetic basis of ADHD. We focused particularly on the distinction between the “heritability” concept –an estimate based on behavioral similarities between twins and family members- versus real molecular genetic studies. The first type of studies can only give a rough estimation because interplay effects between genes and environment cannot be ruled out. The second type of studies, molecular genetics, study actual genetic material and are more exact. Only a quarter of textbooks implicitly address what is known as the “missing heritability problem”, the high contrast between twin/family studies and molecular genetic studies indicate that genes explain less than 10% of ADHD related behaviors. This exposes the weaknesses of twin and family studies that suggest a much higher influence of genetics (60-90%) which is probably due to

aforementioned interplay effects and sample bias. About half of the textbooks do mention the high estimates from twin/family studies while they omit the fact that molecular studies show genes hardly explain these behaviors by themselves. Often, after giving the high and confusing heritability percentages of twin studies –that in fact consist of environmental influences as well-, these books then mention several genes that are involved. Sometimes it is even suggested that these have a deterministic effect while in fact many of the genetic variants associated with ADHD also occur in “normal” people and those classified with ADHD often lack these particular variants.

In chapter 5, the scope is widened against a background of an increasing use of the ADHD-construct to classify children and treat them with stimulants. We introduced the concept of reification, which we present in relation to the nominal fallacy: what has received a name is often falsely perceived as a separate entity. We also furthered the biomedical framing of ADHD in relation to power of biomedical professionals at the expense of educational professionals. Those resources might be better suited to aid professionals who are involved with the socialization of our children on a daily basis such as teachers.

In chapter 6 we further explored “reification” and explained how the discourse surrounding ADHD reifies the concept in many different ways. In addition to the presence of fallacies and medical jargon, the absence of hedges and information that could put the ADHD construct into perspective can also reify ADHD. Dissected into separate mechanisms we believe reification is shown not to be the abstract notion it is often perceived to be.

I end this section with a tentative model of factors that actively and passively reify ADHD (figure 7.1). The 5 factors above the middle line, all identified and discussed in this dissertation such as generalizations, circular reasoning and deceptive metaphors, actively reify ADHD. These factors work in relation to factors that passively reify ADHD by their very absence, depicted at the lower half of the model. For instance, birth-month studies expose the catch-all nature of the ADHD construct, as they indicate that the youngest in the classroom are more often “diagnosed” with ADHD probably due to their young, age-related behavior. By including a reference to such studies, a text on ADHD could de-reify ADHD. However, by omitting such crucial information –that shows that thousands of children worldwide might be on put drugs for displaying age-appropriate behavior- we reify ADHD as well. Similarly, if authors fail to reflect on the small effect size of molecular studies and do not contrast these with the high estimates of twin studies, this leaves the weaknesses of twin studies unexposed

and suggests that when adults classify children as having ADHD, children's genetic make-up is the root cause.

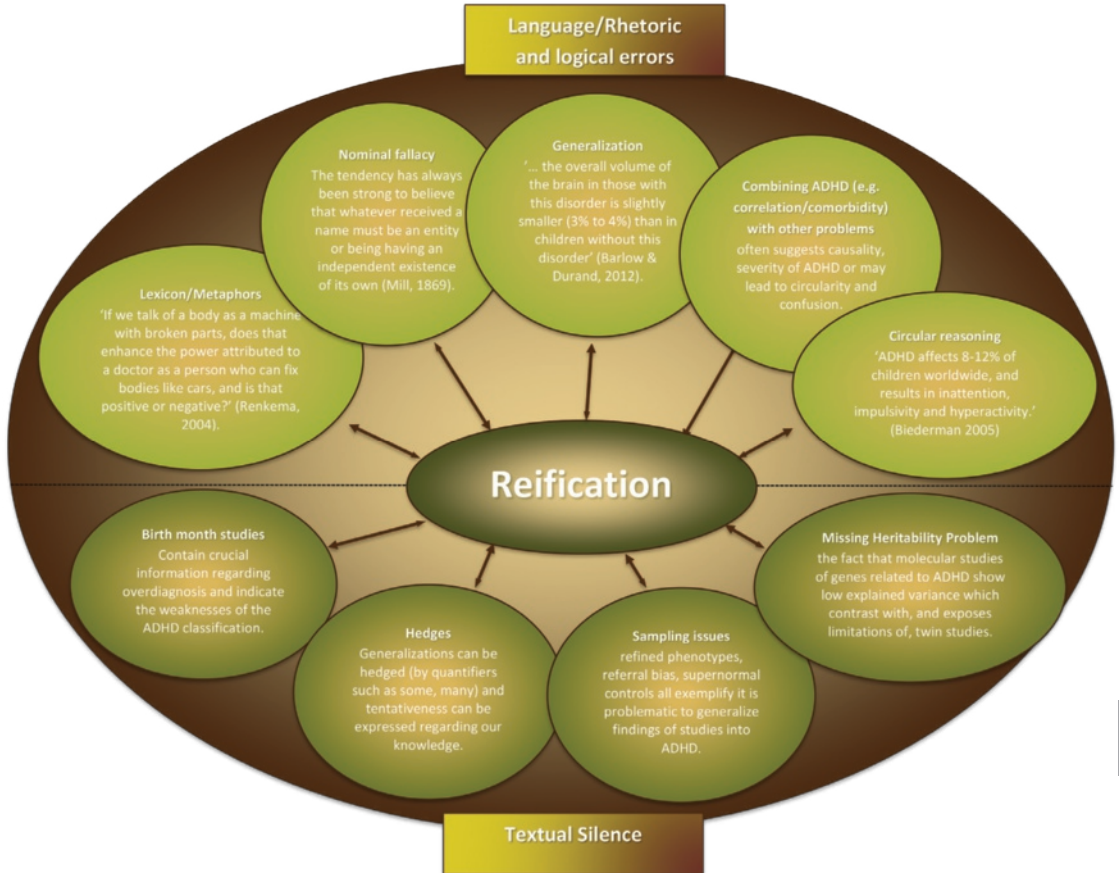


Figure 7.1. active and passive means of reification

## Discussion

In this dissertation, I have discussed the ADHD-concept quite extensively, for instance: historical origins, empirical findings in relation to genetics and anatomy, limitations with regard to external validity due to the use of refined phenotypes and well-controls, and use of psychostimulants. I have emphasized the heterogeneity of those who are classified with ADHD on several attributes such as brain size and genetics, but also on psychological constructs such as executive functions. I have then related these find-

ings to reification. Particularly the generalization, a mechanism that effectively hides the heterogeneity of those classified with ADHD, has been positioned as a powerful key-element of reification.

However, beyond the mere suggestion that generalization is a powerful concept for reification, in the introduction I set out to reflect on reification and generalizations as means for executing power in a broader sense. Thus far I have mostly done so in an implicit way. Reification, as a Marxist concept, is very suitable as a starting point to reflect on power relations as power struggle was one of the basic tenets of Marxist thinking. We will reconsider what I have thus far implied about power and the reification of ADHD, and further reflect on this.

### **Conflict theory**

Marx is often seen as the founding father of conflict theory, a sociological school that sees “power as the core of social relationships” (Wallace & Wolf, 1995, p. 77). In chapter 6 we explained that in class struggle, reification of relations on the labor market suits the needs of the industrial class. If these relations are projected as a fact of life, this might help the industrial class to hang on to their privileged position. Marxist theory focusses mostly on class conflict. This struggle is mostly economic, and occurs between clearly hierarchical levels in society of oppressors and the oppressed. Because of this rather narrow focus, more contemporary conflict theorists, such as Max Weber, have a view of conflict that is more applicable to the *ADHD enterprise* as Lloyd, Stead, and Cohen (2006) frame it. In Weber’s school of thought, more differentiated groups that sometimes do and do not overlap are identified as being in and out of conflict with each other. Particularly Weber’s notion of “status groups” seems usable in relation to conflicts surrounding ADHD.

Within the scientific community, discussions surrounding ADHD reveal much inner turmoil. There appear to be several status groups active in this discussion, yet biologically-oriented professionals hold a dominant position and there seems to be a form of “psychiatric elitism” (Dean, 2017, p. 8). This is illustrated well with the “ADHD consensus statement” by opinion leader Russell Barkley and others, discussed in chapter 4. In the statement, questioning the validity of ADHD is compared to “declaring the earth flat” (Barkley et al., 2002, p. 89). And when Timimi et al. (2004) respond to the statement by forwarding a more cultural perspective towards ADHD, the reply of Barkley (2004) and several coendorsers is no less disdainful. Timimi’s view is called “scientifically flimsy” (p. 68) “folk wisdom” (p. 69) and unable to compete with the substantial support for neuropsychological, neurological, and genetic theories. Barkley’s tendency to dichoto-

mize, also discussed in chapter 7, is taken to the extreme here and further blurs the line between politics and science. In terms of power, such ridiculization can be interpreted as a means to preserve the “social order through the disciplines of embarrassment” (Billig, 2005, p. 156).

Indeed, the medical status group has cause to preserve the current social order as it gives them privilege: When a problem is defined as medical “it is removed from the public realm where there can be discussion by ordinary people and put on a plane where only medical people can discuss it” (Conrad, 1975, p. 18). In the case of real medical entities such as dangerous bacteria, it is less problematic that medical professionals “have a monopoly on anything that can be conceptualized as illness” (Conrad, 1975, p. 18). But to reiterate an important point often made in this thesis: however much generalizations, strong language and metaphors (such as ADHD being portrayed as a “meat-cleaver”, see chapter 6) should apparently legitimize this power base, neuroanatomic and genetic correlations could at most explain some but far from all of the behavioral variance (chapter 3 & 4). And even if these correlations reveal any causality, “brain scans can only differ and never tell which characteristics should count as a disorder” (Dehue et al., 2017, p. 438). So, a much broader perspective than a mere medical one is warranted.

### ***Monetary incentives***

Weber’s sociological analyses of status groups emphasizes another important aspect that is pivotal for successfully maintaining the medical status group, namely the “material means of mental production” (Collins, 1994, p. 93). The success of different (status) groups operating in the ADHD enterprise is never independent of economic forces (Collins, 1994, p. 88), whether they are care-givers, patient groups or critics. The legal obligation scientists have to declare potential conflicts of interest acknowledges that the influence of these economic forces can be problematic in the scientific pursuit of knowledge. Empirical research indeed shows that industry-funded studies are more likely to favor pharmacotherapy over psychotherapy than non-industry funded studies (Cristea, Gentili, Pietrini, & Cuijpers, 2017). Furthermore, industry-sponsored studies are almost 5 times more likely to display positive effects of pharmacotherapy than non-industry sponsored studies (Perlis et al., 2005). And it is common that these sections containing the declarations of interests in biomedical studies of ADHD show authors’ industry involvement, as is the case with the Hoogman study discussed in chapter 2. Fifteen out of the 82 authors report conflicts of interest, 12 of those including pharmaceutical companies.



Commercial funding favors particular strands of research –mostly biologically-oriented- that are economically viable to commercially interested agents. However, also government funded research (in the US) has focused much on the biological underpinnings of behavior (Goldfried, 2016). This is not only problematic in light of publication bias and resulting risk of false-positive results; the sole availability of biologically-oriented studies itself is even used as an argument -regardless of the outcome-. For instance: in reply to critics of their consensus statements, Barkley and his coendorsers actually suggest that the sheer amount of studies into ADHD “with as many as 20 or more papers related to ADHD per month” should attest to the validity (Barkley, 2004, p. 65). Critique on the consensus statement addressing financial ties of many of the authors (Timimi, 2004) is waived by Barkley because the authors are “drawn largely from the membership of the International society for Research in Child and Adolescent Psychopathology, which has no commercial or vested interests” (Barkley, 2004, p. 65). This says nothing about pharmaceutical ties of their members so this argument is irrelevant.

Although it is difficult to assess, as they are as invisible as possible, the practices of ghost-writing and ghost-management, which is common according to Sismondo (2007), are other ways in which money can tilt the power balance. His study is mostly focusing on papers about medication, but he also analyses the supply side. For instance, the presence of Medical Education and Communication Companies (MECC’s) that help prepare papers and presentations, illustrates how the availability of monetary resources is likely to boost the availability of studies by scientists that have more resources available. Similar dedicated companies are also involved with the recruitment of so-called Key Opinion leaders (Sismondo, 2013). By means of speaker-fees and offering funding for research, pharmaceutical companies can help the acceptance of their products while helping to establish the careers of these key opinion leaders. In turn, the influence of these opinion leaders can be manifold. For instance, Russell Barkley –again- has been very active in the case of Gretchen Lefever. She was one of the first researchers who sounded the alarm in the US that the diagnosis of ADHD was spinning out of control. She reported that 8-10% of children in southeast Virginia were being medicated. Her findings included the now well-known birth-month effect, which we discussed in chapters 5 and 6. In one district 63% of children who were young for their grade received diagnosis and treatment. Quickly, her research and public health program that offered psychosocial training and brought down the rate of diagnosis, came under attack. Barkley went as far as saying Lefever “was not a scientist” (Watson, Arcona, Antonuccio, & Healy, 2014, p. 46) and her work was “highly suspicious” (Watson et al., 2014, p. 48). Although she was cleared of all allegations of scientific misconduct and current rates

of diagnosis and drugs prescribed for ADHD are much higher than Lefever reported (see also chapter 5) her project was terminated, probably in fear of a “public relations nightmare” (Watson et al., 2014, p. 48).

### ***Functional Theory***

Despite the level of industry involvement in the production of knowledge and the shocking affair of Gretchen Lefever, it is difficult to determine if it is “merely” medical knowledge that is compromised or if it is worthwhile to determine if individuals are corrupted. Although there are several other examples of personal attacks “through marketing, professional, media, legal, administrative, or political channels – on scientific results that ran counter to financial interests and strong beliefs” (Deyo, Psaty, Simon, Wagner, & Omenn, 1997, p. 1177) this does not necessarily expose motives of self-enrichment. It is hard to deny industry influence but it is defensible to believe that individuals as Barkley merely have very strong beliefs and accidentally have a billion dollar industry to support them.

Surely, there are cases where personal gains seem to have been incompatible with proper scientific conduct. Joseph Biederman, another key-figure in the area of child psychiatry, was indicted for promising positive research findings to pharmaceutical companies prior to the study (Harris, 2009). Additionally, he and two other psychiatrists were disciplined in 2011 for not reporting a large proportion of the 4.2 million dollars they received from drug companies (Sarchet, 2011). However, sponsoring might not necessarily serve personal gains. For instance, industry sponsoring can also serve to fund research such as the financial contribution by drug company Johnson & Johnson to a research center led by Biederman (Harris, 2008). And likewise, other types of sponsoring do not necessarily provide additional income. For example, in the most recent consensus statement about adult ADHD the authors were lauded for giving freely of their time to work on the statement. In this case, the sponsoring by drug company Jansen-Cilag was by financing the meeting costs of the European Network ADHD Adults (Kooij et al., 2010).

The point is, that the intertwinement of money and power is complex and far from deterministic, ranging from exuberant self-enrichment (in the case of Biederman) to travel expenses and meeting costs. In relation to the Hoogman paper, it must also be noted that three-quarters of the authors do not declare such ties to the industry. The risk of generalization, also in this case, is omnipresent and any suggestion of psychiatry as a compromised profession is unintentional. Many psychiatrists are critical of the

current use of the ADHD construct (e.g. Frances, 2011; Moncrieff & Timimi, 2013; Nieweg, 2010).

Trudy Dehue, a Dutch science philosopher, brings in an explanation that I would classify, from a sociological perspective as a functionalistic approach (Wallace & Wolf, 1995). In her reply to Hoogman (see also chapter 2) she addresses the question: “To the degree that diagnoses and biological explanations do provide an initial excuse for the kind of person one is, the most urgent question is why increasing numbers of people apparently need such an excuse” (Dehue et al., 2017, p. 438). In her book “Better People, on health as a choice and commodity”, she addresses this question as a paradox. Although healthcare professionals such as psychiatrists promote their own approach to people in distress –and help create demand for their services- they also merely respond to a demand for care that is not necessarily pushed by their profession but by a cultural and political climate. Contemporary, neo-liberal “lifestyle politics” increasingly urge us to be a better version of ourselves, control our impulses and take responsibility for our own actions, while denying our social nature and social embeddedness and the influences of our environment in shaping our futures and prospects.

Dehue’s approach goes beyond the view of medicalization as the outcome of conflict of interest between different schools of thought. As she argues, those who study and offer help on a biological level, may give some solace in a society that increasingly makes people who are not as successful as others feel inadequate. The paradox of this is, that this climate actually creates psychological distress and increases rather than decreases our need to seek (medical) help. However, this help is now increasingly difficult to obtain as the same policy urges for prevention and self-reliance.

Placing ADHD in a cultural context of the neoliberal ideal of what a normal, well-functioning human being should constitute as Dehue argues, opens the door to an interesting perspective on ADHD. Some of the exuberant comments to Barkley on YouTube call the video “a blessing” and “a revelation” (comments on Barkley, (Barkley, 2014a; Barkley, 2014b)). For these people indeed ADHD might provide an explanation and an excuse for their difficulties as Dehue argues.

However, there is an aspect to this that is perhaps even more intriguing. Barkley’s line of thinking –to my knowledge- represents the purest form of a medical stance towards restless, unruly behaviors and attentional difficulties and differences. As a YouTube comment states “he is preaching it like a religious preacher, like he has [a] definite answer to everything” (Comment to Barkley (2013)). He indeed seems so fanatic and leaves so little room for doubt that -way beyond defending institutional interest- his convictions seem to border on the religious and apparently even lead him to ignore

or deny the, in scientific terms, obvious: brain diversity and group heterogeneity -and not technical limitations- prevent us from diagnosing ADHD based on brain-size (see chapter 3). Such a strong belief in rationality and the “church of science” (Shah & Shah, 2009, p. 5) that apparently renders him quite irrational is named *scientism*. According to philosopher Tom Sorell: “Scientism is a matter of putting too high a value on science in comparison with other branches of learning or culture” (Sorell 2013, p. x). Perhaps an even more intriguing example of the high hopes some scientists have for science and the high esteem of scientists comes from Joseph Biederman. When questioned by lawyers about his involvement with Johnson & Johnson and their funding of his research centre and other matters (Harris, 2009), Mr. Trammel, state lawyer, asked: “What rank are you?”.

Biederman answered: “Full professor”

Trammel: “What’s after that?”

Biederman: “God”

Trammel: “Did you say God?”

Biederman: “Yeah”

(Varallo, 2009, p. 48).

### ***New norms in the wake of the decline of religion***

If we look beyond the absurdity of Biederman’s response, could Biederman’s statement and the comments on Barkley reveal something about the esteem we have of (biomedical) scientists in our contemporary culture? Beyond a conflict-theoretical approach that explains their status mostly by the (financial) resources they can use to sustain this status, how did biomedical scientists rise to fame in the first place? Can a more functional approach, reflecting on the function (biomedical) scientists fulfil, help explain their high status? To reflect on this, I will consider the work of Charles Taylor, whose writings might help bring perspective about the way biomedical professionals such as psychiatrists rose to prominence as the alleged key figures in explaining our behaviors. In “Sources of the self” (Taylor, 1989) Taylor explores the sources of neoliberal ideals and our ideals about what a healthy individual should be, all the way back to philosophers such as Plato, Socrates and Descartes. For instance, Plato, some 2400 years ago, spoke of “mastery of self through reason” (Taylor, 1989, p. 116).

This ideal of a controlling reason was never uncontested. There were for instance rivaling ideals of the self in warrior morality where strength and courage were valued greatly and in Scandinavian culture going “Berserk” reflected a state of being carried away in battle. Additionally, such sensations were also valued as an important source

of inspiration by poets who depended on instinct and a possession by the God 'Entusiasmos' as sources of inspiration (Taylor, 1989, p. 117). The ideal of reason always remained somewhat at odds with a Christian and romantic opposition fearing that such a rational hegemony would stifle and enslave us (Taylor, 1989, p. 116).

Nevertheless, the idealized rational self gained more dominance over the years although it changed in meaning. While the earlier philosophers believed that this rationality could be reached by "connecting up to the larger order" (Taylor, 1989, p. 123), this touch of divinity was pushed to the background some 2000 years later. As Descartes gained prominence, reason was more and more considered to be "*made*, not found" (Taylor, 1989, p. 124). With his famous "I think therefore I am", reason became more important than ever. Descartes' *disengaged reason* as Taylor calls it, is seen as a procedure that if followed correctly, "will result in substantively true beliefs about the world" (Taylor, 1989, p. 156). In order to reach this intellectual high ground, one must become disengaged from one's own feelings, but also from other human beings and social ties to reach a sort of "self-sufficiency" (Taylor, 1989, p. 156), a higher ground from which the world can be seen clearly.

### ***Disengaged reason and the new Bible***

Readers might instinctively recognize this enlightened ideal in our contemporary culture and in the neo-liberal ideals that receive much attention in for example the work of Trudy Dehue. Being free from the influence of others, also defined as negative liberty/freedom (Pettit, 1993) where one has freedom of choice and self-determination in which others do not interfere, is an ideal that underlies liberalism. The ideal of reason and rationality to be found in isolation from others has been put forward as one of the forces that broke the hegemony of the church. However, this "diminution of religion" happened alongside the "abiding faith in science, rationality and (...) the increased prestige and power of the medical profession" (Conrad, 1992, p. 213).

From a functional perspective, this is a crucial notion: "Most functional theorists believe that religion maintains and inculcates certain norms and values central to the group" (Wallace & Wolf, 1995, p. 62). When religion was under attack from science, the norms and values it bestowed could not simply vanish, but had to be replaced. It is perhaps not surprising that a new approach towards norms and values was highly inspired by the institute that conquered ground on religion: science. I would argue that particularly the DSM, often called the *bible of psychiatry*, gained prominence as a new normative framework.

## Disengaged reason and the science of ADHD

Although this short reflection on Taylor's landmark historical/philosophical work might still sound rather abstract, particularly ADHD, in my opinion, illustrates vividly how disengaged reason has gained ground as a normative ideal. Furthermore, this ideal is also prominent in the way we -with the DSM as a guideline- study behavior. I will now elucidate this notion of ADHD as a normative ideal that is highly inspired by disengaged reason. Second, the influence of disengaged reason in the way we study what is considered an abnormal human being, is discussed.

### 1. ADHD as an idealization of the disengaged self

When viewing the DSM as a "detailed guide for what is expected of a normal person" (Dehue, 2014, p. 234), ADHD delivers a blueprint for an ideal self that highly values disengagement from one's own feelings, irrespective of context. This is illustrated, for instance by criterion 1a on inattention: "often fails to give close attention to details or makes *careless* mistakes". So, the fact that such details might not be meaningful for a child -perhaps he/she really could not care less- is seen as a symptom. Another example is criterion 1f. "often avoids, *dislikes*, or *is reluctant to engage* in tasks that require sustained mental effort" (...). Again, this shows that not liking something is seen as a symptom, rather than a child's personal preference (italics: StM).

Similarly, impulses that might interfere with concentration on tasks that a child might find boring, or a child responding to other things in the context, are pathologized in a similar way when considering them as "symptoms" of ADHD. For instance, enjoying to be vocal during leisure activities is considered to be such a symptom. 2d states: "often unable to play or engage in leisure activities quietly". If a child cannot be vocal during leisure time -perhaps in an attempt to communicate and involve peers with his play- then when can he be? Or criterion 1c: "*often runs about or climbs* in situations where it is inappropriate". However inappropriate we may deem this to be in some circumstances, many children, and adults as well, *like* running and climbing.

The fact that a child apparently should be able to behave regardless of context also becomes obvious when reflecting on the "diagnostic features". It is stated that "typically, symptoms vary depending on context within a given setting". Hence, the child is apparently expected to show the task-oriented behaviors in any context. Furthermore, "signs of the disorder may be minimal or absent when the individual is receiving frequent rewards for appropriate behavior" and "is in a novel setting". So, apparently children should be able to function in a context without reward, and the fact that certain children might get bored by the same setting, such as a classroom, is pathologized.

## 2. *Scientists' disengaged view towards children*

However, the influence of the ideal of disengagement perhaps becomes even more visible when considering *how* we study children. Most ADHD criteria completely objectify children's behavior from a third-person perspective, without considering the subjective meaning for a child. Examples of this are behavioral criteria such as: "often fidgets with or taps hands or feet or squirms in seat" (Criterion 1a) or "often talks excessively" (criterion 2f).

Furthermore, the "diagnosis" apparently does not involve or need any interaction with the child. In fact, clinicians are spurred on to disengage rather than engage with children. For instance, clinicians are made aware that when a child "*is engaged* in especially interesting activities" the "symptoms" may not occur. It is fathomable that we could help the child by finding out what interests him or her. Instead, this passage seems to urge the clinician to look for situations the child finds boring and see if the child can concentrate nevertheless. If not, a diagnosis might follow and help can be initiated (American Psychiatric Association, 2013, p. 59-61) (*italics: StM*).

### *In sum*

We have established that there are many ways in which scientists "reify" ADHD in academic textbooks, scientific articles and elsewhere. In this concluding chapter, I reflected on the question: why? Is it a quest for power? A conflict theoretical perspective, from which the reification term originates, definitely provides interesting points. We have established that in a conflict-theoretical perspective, reification, with generalization as its ultimate mechanism, can serve particular scientific communities –especially the medically-oriented- to inflate the biological perspective on ADHD. Economic resources are available, by means of the pharmaceutical industry, to support research, attract key opinion leaders and use them to further disperse this biological orientation. This conflict-theoretical perspective can give at least some explanation for the dominance of biological analyses of behavior and the blinders we have to the limitations of neuro-anatomical and genetic studies.

Does it suffice? Reflecting more on a functional approach and considering the cultural-historical context of our biological study of behavior, we see it is embedded in a Cartesian worldview of disengaged reason. This worldview has eroded religious norms and the norms stemming from the DSM - often called the Psychiatric Bible - help to fill the void that was created. ADHD provides a vivid example of how much we value such a disengaged stance. This becomes visible both in the disengaged manner in which we

study behaviors and in the norms we impose on children, that expect them to be able to ignore their feelings. Some of the criteria for ADHD are even devaluing personal preferences.

## **Strengths and Limitations**

Although qualitative methodology is gaining ground (Landrum & Garza, 2015), for long its status has been below that of quantitative studies and their respectability is still not in par (Jackson, 2015). As a result of its lower status within social scientific circles, I found it was still difficult to find suitable courses on qualitative methodology. In the Netherlands the diversity and particularly the quantity of courses on qualitative research are relatively low.

Due to the difficulty to find formal training about qualitative research, I initially felt unsure about my level of knowledge. This, in addition to the abundance of often overlapping qualitative methods, and a perceived lack of fit of our research questions with any existing method, was an additional motive for our eclectic strategy also explained in the introduction. Although staying within a “comfortable methodological rut” (Denzin & Lincoln, 2011, p. 595) is not necessarily good, I feel as if I have borrowed without giving back. Furthermore, placing my studies more in an existing tradition might help to professionalize our future efforts and those of others.

The following brief discussion therefore serves to pay respect to scholars and approaches that helped and inspired me, to reflect on how –in hindsight- I might have integrated several methods more explicitly and finally, how this work can be improved.

## **The use of critical reviews**

In this thesis I have included two critical reviews: chapter 5, which discusses the ADHD-concept and its’ limitations in relation to education, and chapter 6, which describes several uses of language that reify ADHD. According to the typology by Grant & Booth (2009), critical reviews have (obvious) cons: they are not as systematic as most other types of reviews and they have interpretative components that contain an element of subjectivity, and ours are no exception.

However, the merits lie in the conceptual innovation critical reviews can stimulate. Chapter 5 mostly aims to “resolve competing schools of thought”, as critical reviews often aim to do (Grant & Booth, 2009, p.93). In our case it exposes how current conceptualizations of unruly behaviors under the ADHD-umbrella privilege biomedical professionals at the expense of educational professionals. This also serves my -somewhat latent- research question about power.



Additionally, qualitative research can be a “‘launch pad’ for conceptual development and subsequent testing” (Grant & Booth, 2009, p. 93). For instance, by quantifying certain concepts a sense “of their typicality can justifiably be made” (Giddens, 1984, p. 328). This we have executed for generalizations and genetics in the way they reify ADHD. This combination of conceptualizing and then quantifying also illustrates that the line between qualitative and quantitative research might not be as sharp as it is often drawn (Madill, 2015).

I consider the conceptual innovation critical reviews can bring to be exemplary of more qualitative approaches in general. Even regardless of subsequent testing via quantitative studies, more conceptual studies are highly valuable, even from an inferential point of view. This can be illustrated well by reflecting on air crash investigations (Minnaert 2018, personal communication). To find out why an airplane has crashed, we obviously do not assign airplanes to case and control-groups and test our hypothesis. Instead, we meticulously study the pilots’ communication prior to the crash and their background, the remains of the plane, the history of the airplane, etcetera.

Although it might give solace to the relatives to know what happened, and although  $n=1$ , the main goal is -just as it is in quantitative studies-, to generalize the findings and avoid future disaster. I would argue this is what qualitative researchers call “analogue generalization” (Smaling, 2003). Researchers consider “the relevant similarities and differences between the cases studied and the cases not studied” (Boeije, 2010, p. 182).

### **Qualitative content analysis (QCA)**

To quantify the occurrence of particular ways, such as by generalizations, in which ADHD is reified, an approach was used which matches Quantitative Content Analysis (e.g. Riff, Lacy, & Fico, 2014). This approach was mostly concept-driven as it relied on pre-defined rules and inter-rater-reliability and was mostly “variable-oriented” (Schreier, 2012, p. 25). The latter means that I aggregated counts of generalizations across the textbooks. Although this provided important insights and allowed us to analyze our data on a broad set of claims about ADHD, I became more and more aware of the importance of context in the textbooks. For instance, I discovered that generalizations could be “hedged” by phrases elsewhere in the chapter, or even outside of it (see also introduction). I therefore increasingly included more elements from qualitative research that is oriented more on “cases in their entirety” (Schreier, 2012, p. 25). This meant that I started to consider how chapters/sections on ADHD in their entirety displayed and often erroneously generalized brain-anatomy in relation to ADHD. I then shifted to an approach inspired by Qualitative Content Analysis (QCA) that seemed useful

because of its “emergent flexibility” (Schreier, 2012, p. 32), allowing more to integrate data-driven insights.

### **Critical Discourse Analysis (CDA)**

Critical Discourse Analysis (CDA) is considered “the most prominent approach to discourse and culture” (Renkema, 2004, p. 282) and can help to disentangle the discourse about children. For instance, the way certainty is suggested regarding our knowledge of children’s brains and genes can be studied using the concept of “hedging” (see chapter 3 and 4) but also Bruno Latour’s notion of “positive/negative modalities” (chapter 3) fits well within a CDA approach and the study of discourse (see for instance Hall (2005, 2011)). Additionally, the concepts of nominalization and passivization (Billig, 2008; Renkema, 2004), to show illustrate mechanisms of reification, are borrowed from CDA (see chapter 6 and this concluding chapter. Finally, CDA assumes that discourse reflects underlying power relations (Van Dijk, 2008) and therefore it also matches one of the objectives of this thesis.

Despite this, I have not made it my dominant approach. Firstly, my interest in underlying power relations was secondary to my wish to describe mechanisms of reification. Secondly, despite giving a usable toolbox of rich concepts, CDA did not contain many systematic guidelines -which I was in dire need of. Thirdly, as I believe that solid and replicable knowledge can sometimes benefit greatly from following systematic procedures. I feared that lack of such procedures created an overdependence on interpretation and I feared this would weaken the external validity of our findings in relation to textbooks. I have, in hindsight, found other researchers who share these concerns about interpretation (Schegloff, 1997; Toolan, 1997). To explain this latter point about validity, using the words of Schegloff, interpretations are at risk of leading to “theoretical imperialism” (Schegloff, 1997, p. 167). Nevertheless, we have integrated some of the concepts of CDA and have aimed to tackle the many challenges to an eclectic approach, such as having “a clear rationale for putting approaches together, a sophisticated understanding of each approach, and an account of how the tensions between approaches will be handled in your study” (Cameron, 2005, p. 126). I believe that CDA’s concepts can be of great importance for improving writing about children behaving unruly (without using the nominalized form ADHD for example). Furthermore, by using a method that provides mostly a systematic framework -that CDA seems to lack- I believe the methods/approaches we used complement each other and there are no inherent tensions.

## CDA and QCA

I have found support for the way we have combined different approaches. For our purposes, particularly QCA seems to match well with (concepts from) CDA. Schreier (2012) states: “QCA and discourse analysis can be combined by putting QCA into the service of the critical-interpretative attitude underlying discourse analysis”. Schreier adds: “From this perspective, critical discourse analysis is less a method, and more an attitude towards research and your research question”. There are different combinations possible, however, and we refer to Paltridge (2012) and Schreier (2012) for a discussion.

## Logic

Similarly, this is also how we have used concepts from logic. We have referred to “The Logic of ADHD” (Tait, 2009) in several chapters, and to other studies/handbooks on logic such as Levy and Press, 2010; Hyde, 2008 and Ruscio, 2006. We have often discussed these concepts in the results, and as such they have not been integrated in the method. However, the *omitted quantifier fallacy* has been outlined already in the method section and it served as part of our coding frame. In this way we have integrated it similar to the way Schreier describes the integration of CDA and QCA. Logic and critical thinking provided more of an attitude and useful concepts that we used within a framework of coding and analyzing our data. However, we are aware that this is just one of the many possibilities, and for future studies we want to refer to “the logic of real arguments” (Fisher, 2004). This textbook does provide a sophisticated and structured method for analyzing arguments in a real-life discourse. Such an analysis *opens-up* the data rather than reduce it as QCA does (Schreier, 2012, p. 7). Therefore, it seems most suitable for case-studies or very limited data-sets, which is why we have not employed it.

## Implications

Goldfried (2016) argues that the rationale behind the funding policy of the NIMH has been “increasingly dominated by psychiatrists interested in pharmacotherapy and neuroscience (...). In essence, psychological problems were viewed as having its roots in underlying biological processes, such as chemical imbalances in the brain. Along with this biological orientation, the general approach to the treatment of psychological problems was viewed as paralleling the treatment of physical disorders” (Goldfried, 2016, p. 78).

If this would have rendered an abundance of meaningful results, this might not have been so problematic. However, “the lack of clinical tests is striking given that biological

psychiatry has been very productive in generating new scientific findings: a corpus of over 107 000 articles already available on PubMed with over a 100 new articles being added to this every single week” (Kapur et al., 2012, p. 1175).

In this thesis, I have scrutinized the omnipresent reifying discourse and faulty logic that constructs and sustains the feeble basis of ADHD as a veritable disease. This discourse privileges a biological orientation towards ADHD (and other classifications of the DSM 5) that was already highly privileged by resources from the pharmaceutical industry and by cultural historical factors as well. This has several practical implications.

### **Policy implications**

Politically, the high interdependence of science and commercially vested interest calls for a thorough consideration of how we use financial resources from the market while safeguarding a fair and neutral division of those resources within science. One long-standing idea is proposed by former parliament member Agnes Kant<sup>1</sup>. In a study of the power of the Pharmaceutical industry, containing 25 mechanisms to control this power, Kant and others proposed to concentrate both government and industry resources in a fund with representatives from healthcare institutes, government and (pharmaceutical) companies. Such a fund could safeguard a more neutral division of resources (Kant & Palm, 2005) amongst different branches of science involved with the study of restless children and human behavior in general.

### **Scientific funding agencies**

For policy-makers responsible for scientific funding, the implication is that that they should be aware of this privileged dominant, reifying biological discourse and of the many societal factors that are also associated with the behaviors that fall under the catch-all umbrella of ADHD which are constantly at risk of being overlooked. Funding agencies should also be aware of how institutionally dependent we have become on ADHD and other constructs from the DSM (Hyman, 2010).

### **Alternative approaches**

This institutional dependence on constructs such as ADHD and the failure to find clear genetic, anatomical or physiological underpinnings has resulted in a quest for a new classification framework (Cuthbert, 2015). One such a framework is formed by ‘Research Domain Criteria’ (RDoC) –that start with biological correlates instead of behav-

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1 currently director of the Dutch center of study for side-effects of medication, called Lareb ([www.lareb.nl](http://www.lareb.nl)).

iorally based categories. Although such a framework might have its merits, I fear that when disregarding environmental and cultural factors, mere (biological) differences can still be wrongfully interpreted as diseases. Furthermore, as biological correlates have proven to be weak for ADHD, there is a risk of another era of highly expensive and relatively fruitless research. Another approach is therefore to avoid individual classification in the first place by taking a more cautious approach towards labelling such as Stepped Diagnosis (Batstra & Frances, 2012). With Stepped Diagnosis, the actual classification is postponed. Instead, an initial focus on normalizing and understanding behaviors as a function of stressors in life is suggested and brief counselling is offered initially.

### **Future studies and increased awareness amongst authors**

I strongly recommend further studies to analyze the prevalence of flawed information regarding neuro-chemistry and neuro-physiology, but also the absence of contextual variables correlated with ADHD can be analyzed, such as birth-month studies –not mentioned in any of the ADHD sections in our sample. Different domains of discourse besides textbooks need to be analyzed as well (and adjusted if needed) to give a properly balanced view of what we know of the behaviors classified as ADHD. Examples are books addressed at children such as by Foget and Van Haeringen et. al. (2017) and studies into ADHD portrayals on television and by several other media such as Bourdaa et al., (2015); Gonon, Konsman, Cohen, Boraud, & Boutron, (2012); Ponnou & Gonon, (2017). Additionally, websites and works under construction by (textbook) authors and editors writing about ADHD should be studied to avoid the reifying mechanisms described in this thesis.

### **The voice of the child**

Perhaps the most important point about the reification of unruly behaviors by the ADHD-concept is that by “medicalizing key elements of our life through biotechnical interventions, we may weaken our sense of responsibility and agency. (...) merely regarding ourselves and our activities in largely genetic or neurochemical terms may diminish our sense of ourselves as moral actors faced with genuine choices and options in life” (President’s Council on Bioethics, 2003, p. 90). Particularly for children, these may be pivotal issues as we bestow this medical frame and the resulting interventions upon them.

Irina Singh has executed several quintessential studies (e.g. Singh, 2011; Singh, 2012; Singh, 2013) in which she interviews children about their perceptions and opinions about ADHD and medical interventions. These studies indicate there are probably

no yes or no answers to the question of what does and does not give agency to children. For instance in relation to the use of drugs like Ritalin, some children felt unhappy and alienated from themselves, while others sensed they had increased moral agency or appreciated that they felt they could perform better when taking these stimulants (Singh, 2013).

Fortunately, Singh does look beyond the normative context in which “the pharmaceutical industry plays a powerfully prescriptive part in popularizing ‘normal’ child behaviors and emotions, as well as, through their direct to consumer advertising, in promoting models of achievement and success, happy families and good parenting” (Singh 2013, p. 364). Singh warns that the use of drugs may serve coercive means and may become a “norming tool, or a means to make children more docile in face of possibly oppressive academic and behavioral expectations” (Singh, 2013, p. 364).

So, the actual value of the contribution of involving children in research might be bounded by the children’s (limited) capacity to see the bigger picture. Furthermore, Singh’s study relates to the use of drugs and not so much to education about the ADHD construct, the subject of this thesis. Nevertheless, the merit of Singh’s work seems to lie in the fact that she righteously has demanded “respect for the aspirational human agents involved” (Singh, 2013, p. 365) by involving them.

### **The rights of the child**

I would argue that we follow Singh’s footsteps of involving children by relating the findings of this thesis to a contemporary institution based on this premise of empowering children: the convention of the Rights of the Child. With the acceptance of the Convention of the Rights of the Child, we have acknowledged since 1989 that children themselves deserve agency. Possibly, the objectified “diagnosis” of ADHD does not sufficiently respect this. Article 12.1 (Respect for the views of the child) states that “in all matters affecting the child, the views of the child [are] being given due weight in accordance with the age and maturity of the child”.

Several other articles from the Convention may be at stake. Article 2, for instance, should prevent a child from being discriminated. However, an ADHD classification – possibly viewed as a brain-disorder by popularized belief- can cause discrimination early and later in (professional) life. In addition, the preservation of identity (article 8), might be at stake when a child’s inherited temperament -which does not imply genetic defects- is labeled as a disorder. And when a definite statement about individual children’s alleged biological make-up, like brain size, is spread, what does this mean in relation to article 16 that aims to safeguard a child’s privacy? Additionally, have we sufficiently

## References

considered the pros and cons of psychostimulants in terms of the health and health services we should safeguard (article 24)? And finally, when ADHD is portrayed as a hardwired, physical ailment this might provide a false premise for the prescription of potentially dangerous stimulants. Article 33, that stipulates that we should take 'legislative, administrative, social and educational measures, to protect children from the illicit use of narcotic drugs and psychotropic substances' might thus be at stake. Considering the confusing discourse about ADHD in academic textbooks and outside of it, this really begs the question if we have indeed taken sufficient (educational) measures to prevent misinformation being spread about ADHD and if legal action is warranted.