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Creative Kindness



Looping effects or myriad ways of a
psychological category

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“Human kindness is overflowing. And I think it’s going to rain today.”

-Randy Newman

“Obviously we could have failed to be successful scientists.”

-Ian Hacking

On the cover Kandinsky’s *Yellow-Red-Blue* (1925)
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Introducing psychology and its public

Psychology interacts in a peculiar way with its public. Scientific accounts of human beings often explicitly condemn public myth or folk psychology. Psychological method is supposed to distinguish scientific knowledge from popular fiction. With systematic rigor, observation and manipulation, a psychologist is detached from his subject. In fact, a group of individuals is specialized in and authorized to study individuals for methodologically moving away from the individual. It is strangely self-referential that psychologists both are and study human beings, eventually drawing conclusions about themselves. Moreover, they relate in an odd way to other human beings, when observing, describing and explaining them. A human being keeping others at a scientific distance, making statements about them considered more knowledgeable than the common-sense statements they make about themselves, is a funny scenario.¹ It leads people to ironically ask “so you can see straight through me?” A familiar question to those with a psychology degree. It indicates that a psychologist is supposed to know people on a superior level and that he is just one of them.

Indeed the psychologist is a person representing a whole community of scientists. His authority is enhanced by institutions like universities and hospitals. Nevertheless, the community of experts greatly depends on the community they study. The public is responsible for delivering the raw empirical material that psychology is supposed to refine, and for the subsequent knowledge reception, evaluation and consummation. People are concerned with themselves and with scientific statements made about them. This can determine what emerges as psychological knowledge and how people will react to it, adjusting their behavior to scientific description or not. Thus psychologists, not only for being subject to their own knowledge, might be closer to their public than they take themselves to be.

To put it briefly, psychology distances itself from the public in terms of acquiring knowledge, whilst this knowledge involves and interests the public. As an example take creativity. It is an individual attribute, a typically psychological variable and a quality desired by everyone. Ever since creativity became their subject, psychologists have been trying to unravel its myth. Now if a psychologist would try to scientifically determine somebody’s creativity, maybe that of another psychologist, what would be the first reaction on a negative evaluation? Probably “art is beyond science” or “it’s a matter of taste” or “on what grounds? I’m a very creative cook!” or “not as long as I believe I’m creative” or “my cognitive processes are the same as everybody else’s, so are they not creative either?” With a positive evaluation everybody would of course entirely agree.

For its content psychological knowledge takes the form of address: it is both about a person as said to this person, as a kind of judgment. It is hard to not take such a statement personal, even though it is made by somebody who is part of a community systematically gathering knowledge about people. A “who are you to judge me” is entirely in order and responding “a scientist” might not be enough of a justification. Science is not supposed to judge, it is supposed to be value-free. However, as soon as people are subject to scientific scrutiny this separation is hard to maintain, because people take interest in themselves. How this might complicate psychological knowledge has been elaborated by for example Dutch psychologist Wim Hofstee (1980).

¹ The film ‘Kitchen Stories’ by Bent Hamer (2003) delightfully illustrates this.

Hofstee noticed something remarkable about social scientific statements, they “*inform people about what would have been the case if they had not been informed by these statements*” (1980, 175). If statements or predictions are available to the people they refer to and the behavior they describe or predict is a matter of choice, something quite common in the social sciences, then the statement is paradoxical. When reflecting upon the statement made about him, the subject can decide whether to agree with the statement or not and whether to adjust his behavior in favor of this statement or not. Predictions can thus be self-fulfilling or self-defeating. Upon becoming public the statement changes the conditions that led researchers to state it in the first place. The knowledge thus obtained is quite unstable. Hofstee concludes that social scientific knowledge is tentative. However, more seems to be going on.

According to philosopher Ian Hacking the human and social sciences aim at moving targets (1995). Scientific categorization of human beings, addressing them in the above mentioned peculiar way, generates a *looping effect*. A scientific classification creates a public: people react to their scientific categorization, because it matters to them how they are addressed or classified. Many times this involves a negative value, take mental illness or learning disabilities, or a positive value, take intelligence or creativity. Consequently people reorganize their lives in terms of their scientific classification. They see themselves differently now they are part of some scale, specific group or particular diagnosis, and might behave differently either confirming or disconfirming their classification. Something changes in the empirical world on which the classification was based. Therefore the classification has to be adjusted to new empirical data. The scientific classification changes, again changing the public and the classification has to be readjusted accordingly. Thus the interaction between human science and its public describes a loop.

Hacking has found looping effects of homosexuality, child abuse, teen-age pregnancy, adolescence, suicide, autism, multiple personality and fugue. He has a preference for certain examples, but suggests that looping effects are typical for human kinds and thereby found throughout the human and social sciences. This is worth an investigation especially with respect to psychology. A field that embraces more than just the mentally abnormal and aspires to be a kind of natural science. In order to do this a psychological kind that is found in many different psychological approaches is needed. A good candidate has been mentioned before. What about creativity? It is certainly more cheerful than suicide or child abuse and subject to fields as developmental, social and cognitive psychology. More recently it has come to the attention of neuropsychologists as well, like many psychological variables finding its way into a brain scanner.

To further explore the relation between psychology and its public, creativity will be investigated as a kind likely to describe a looping effect. Hacking’s account of human kinds and their looping effects, or interactive kinds, will be further elaborated. It will be discussed how this account might transfer to psychological categories, involving the historical work of psychologist Kurt Danziger. Then creativity will be introduced drawing the history of the concept, describing how it is encountered in public and how it has been approached within psychology. Next, the question whether psychological creativity makes a looping effect will be under scrutiny, as will creativities’ alleged human kindness. Finally conclusions will be drawn, discussing the relevance of Hacking’s looping effects for psychology given the ambiguity of creativity, suggesting that Danziger’s myriad cultural pathways are more appropriate and that norm and value bring psychology and its public together.

1. Of kinds and categories

From paradox to rollercoaster

According to Hofstee a paradox complicates the gathering of knowledge about human beings. The effect that Hacking describes is similar to what Hofstee detected², but takes the form of a rollercoaster. Hofstee maintains a separation between the subject and its description, the latter predicting the behavior of the former. However, predicting becomes paradoxical when it concerns people aware of being addressed. For Hacking kinds of people and the knowledge about them coincide. Human kinds are classifications involving both the classified subject and its description.

He observes that the human kinds themselves, the classifications of people, make a looping effect. Classifications change the classified, who change the classification, *“and the classified change again, loop upon loop”* (1995, 370). When new human classifications become available, they change how classified people think about themselves, they change their self-worth, their behavior, their future and their past, now reconceived in terms of the new classification. Also, the way other people think about this kind of person changes. A diagnosis changes to what extent somebody is considered responsible for who he is or what he does. Deviant behavior can now be attributed to this new human kind and intervention geared towards it. However, Hacking carries the effect a little further.

“I assert that there are changes in individuals of that kind, which means that the kind itself becomes different (possibly confirmed in its stereotype but, as I go on to urge, quite the opposite may happen). Next, because the kind changes, there is new knowledge to be had about the kind. But that new knowledge in turn becomes part of what is to be known about members or the kind, who change again. This is what I call the looping effect for human kinds.” (1995, 370)

Kinds of kinds

The phrase “human kinds”³ aims at the systems of classification particular to people. Hacking has no strict definition in mind. Rather he indicates what kinds fall into this category, what properties they have and where to encounter them. *“Kinds of people, their behavior, their condition, kinds of action, kinds of temperament or tendency, kinds of emotion, and kinds of experience”* (1995, 352) are classified as human kinds. What characterizes them is that they are relevant to us, they are peculiar to people, and they are kinds we want to have knowledge about that’s systematic, general and accurate enough to be able to intervene. Furthermore, kinds of human behavior are considered human kinds if they are used to characterize or conceive of a kind of person (1995, 354). In other words, Hacking refers to kinds of people and their characteristic features, as studied by the human and social sciences. Now *“the search for human kinds that conform to psychological or social laws is inextricably intertwined with prediction and reform.”* (1995, 360). The human and social sciences have been concerned with both explanation and intervention. Hacking states that scientific causal explanation, classification and intervention develop simultaneously, forming a body of practical knowledge. A human kind is a

² Actually Benjamin Kouwer, Hofstee’s predecessor, had already pointed out that psychology is a *“weird science, whose object is a subject that can talk back and undo allegedly objective characterizations at any given time.”* (Van Strien, 1993, 14)

³ The phrase was patterned after the “natural kinds” as described by Hilary Putnam and Saul Kripke.

- Putnam, H. (1975). ‘The Meaning of ‘meaning.’ In Gunderson, K. (ed.) *Language, mind, and knowledge*. Minneapolis: University of Minnesota Press. 131-93.

- Kripke, S. (1972/1980). ‘Naming and necessity.’ In Davidson, D. & Harman, G. (eds.) *Semantics of natural language*. New York: Humanities Press: 253-355. / *Naming and necessity*. Cambridge: Harvard University Press.

classification in which causal explanation and intervention are implied. *“The kind and the knowledge grow together”* and *“cause, classification and intervention were of a piece”* (1995, 361).

What distinguishes human kinds from their natural counterparts, according to Hacking, is that they are intrinsically value laden (1995, 367). A piece of stone in itself is not good or bad, nor does it matter to the stone whether it’s considered heavy or not. A natural kind is indifferent to how it is classified. It can be valuable depending on how it is used or abused: gold becomes valuable in trade; a nuclear reaction becomes valuable in beginning or ending a war. Apart from their application by human beings, natural kinds do not intrinsically matter. They are “indifferent kinds”, a phrase that Hacking introduces to get rid of the philosophically burdened natural kinds and of the deceptively neutral adjective ‘natural’ (1999, 105; 2002b, 7).

Human kinds are not indifferent, regardless of the attempts to biologize and medicalize them. An illness needs to be cured; sick or deviant people need to be helped in order to become healthy and normal. In the classification of human beings a norm is present.⁴ Indeed, as far as it is practical this knowledge is ultimately aiming at improving or helping people, not merely at describing them and leaving them how they are. The knowledge is influenced by the practices in which it is applied and from which it is drawn. Particular ideas of helping and improvement reside behind these practices, for nobody knows what’s universally ‘better’. *“Each standard and each category valorizes some point of view and silences another.”* (Bowker & Star, 2002, 5). Even more importantly, classifying itself involves a norm: the prototypical example of a category or the mean and standard difference of a distribution. Classification occurs supporting a certain norm or rather classification and standardization are two sides of the same coin (2002, 15). Now, for people norms that refer to them have value. To be categorized as a certain kind of person, whether it is as a child abuser or as depressed or as a genius, matters a lot to people. A mental illness or social stigma might not be considered ‘bad’, but it is unwanted nonetheless. For people with suspicions it is reassuring to learn that according to scientific psychology their behavior is normal and/or natural. “Normal” and “natural” are intrinsically moral when referring to people. According to Hacking human kinds are value laden *because* they refer to and normalize people. The moral value inherent to the classifications of people, the norms produced by human science, sets human kinds in motion. *“The greater the moral connotations of a human kind, the greater the potential for the looping effect.”* (1995, 370).

Looping effects are so characteristic of human kinds, that Hacking renamed them “interactive kinds” (1999, 59), referring to how classifications are interactive, not people. Yet this phrase does not seem to distinguish very well from indifferent or natural kinds (Martínez, 2009; Hacking, 2006, 2). Newly created or discovered natural kinds can change something in the world. Nature is not that static and susceptible to intervention. When manipulating in a laboratory or when introducing a technical innovation, natural kinds can change. For example, the cannabis plant itself has changed in the course of its popularization and subsequent social regulation, because it moved from open nature to secret plantation (Martínez, 2009, 223). Likewise, microbes adapt to our intervention in their lives. They mutate and become resistant to our medicines (Hacking, 1999, 106). However, this is a looping different from human looping. What distinguishes the looping effect of human kinds is that human behavior is intentional, that is humans act ‘under a description’ (Hacking, 2002, 108⁵).

⁴Actually in medical classification as well, see Bowker and Star (2002).

⁵ Hacking refers to: Anscombe, G. E. M. (1957). *Intention*. Oxford: Basil Blackwell.

“The courses of action that they choose, and indeed their ways of being, are by no means independent of the available descriptions under which they may act. Likewise, we experience ourselves in the world as being persons of various kinds.” (Hacking, 1999, 103)

In order to tell interactive kinds apart, Hacking stresses the self-awareness involved in human looping.

“The awareness may be personal, but more commonly is an awareness shared and developed within a group of people, embedded in practices and institutions to which they are assigned in virtue of the way in which they are classified.” (1999, 104)

Being treated or institutionalized as of a certain kind, changes how people experience themselves. This is not merely due to social awareness of human kinds, but also to how human kinds matter to people. Kinds of people and their social surroundings act under a description that matters. That is to say, human looping is value laden. Mere interaction might not set kinds of people apart from natural kinds, but they are certainly not intrinsically indifferent. The phrase ‘interactive kinds’ is used to refer to human kinds that are characterized by specific looping effects; to classifications that concern people and for that reason interact with what is classified.

Making up people

The idea of interactive kinds, or the looping effects of human kinds, arose in the course of Hacking’s studies of ‘making up people’. Homosexuality (1986); child abuse, teen-age pregnancy, adolescence, suicide and autism (1995); multiple personality (1995b) and fugue (1998) all are examples of how people have been made up.

“I do not believe there is a general story to be told about making up people. Each category has its own history. If we wish to present a partial framework in which to describe such events, we might think of two vectors. One is the vector of labeling from above, from a community of experts who create a “reality” that some people make their own. Different from this is the vector of the autonomous behavior of the person so labeled, which presses from below, creating a reality every expert must face.” (Hacking, 1986, 168)

The intricate histories of the above mentioned categories greatly differ, yet they have in common that they are value laden. These scientific classifications have effects on the classified people and their behavior, on (mental) healthcare, education, law, political agendas and ultimately on themselves and the knowledge about them. Furthermore Hacking indicates their historicity. Indeed, he asserts that human kinds, as we now know them, were recently created or newly classified. The phenomena and behaviors that human kinds refer to might have existed before. However, they were not classified as they are in the present and thus were not known as they are now. Child abuse, teen-age pregnancy and adolescence did not exist until a certain line was drawn between childhood and adulthood. Marriages between older men and what now would have been under aged girls, and these girls having babies, were quite common. Our present categories did not yet apply (if we would say they do apply to the past, we would impose a post-hoc order on historical practices), so the behavior was not considered wrong or problematic. Hence these human kinds have not existed forever but they came into being. Hacking employs what he calls a “historical ontology” (2002).

The notion that people are made up, or that human kinds are historical, does not imply that human kinds aren’t real. Firstly, because these classifications matter a great deal to people and therefore have very real implications from an individual level to a political level. Secondly, because human kinds both constitute and are constituted by real phenomena. These phenomena develop

throughout history together with the classifications they belong to. There's an interaction between human classification and human phenomenon. Hacking considers himself to be both a realist and a "dynamic nominalist". According to dynamic nominalism the human kinds and the people they concern jointly come into being. "*The category and the people in it emerged hand in hand*" (2002, 107). What Hacking illustrates with his examples is that these classifications are historical but real, because classification is creating or changing reality. The norm and intervention involved change practices, different practices have existed with different norms. The homosexual kind of person did not exist before being classified as such. The knowledge about him was a function of the classified examples. Until the DSM-IV replaced number III, homosexuality was categorized as a mental illness. The knowledge about homosexuals and the homosexuals themselves changed when this classification was abandoned. New causes were proposed and interventions were cast aside, while homosexuals took hold of their own identification and claimed their rights. People were made up in different ways before, but classifications change, new realities are created and as human kinds loop into the future they will change again.

A transfer to psychology

Many of Hacking's examples are taken from psychology, and referring to the human and social sciences he explicitly includes psychology as being subject to looping effects. However, a critical comment especially relevant to psychology arises of which Hacking himself is also aware (1995, 371), namely that he has a preference for certain examples. Most of the human kinds investigated by Hacking (and others following in Foucault's footsteps) are mental illnesses or other kinds of behavior considered deviant. A critical psychologist could protest that for the heterogeneous field of psychology this can hardly be representative. One could wonder about psychology and its internal consistency, but also whether the many different psychological objects that were not investigated are human kinds that make looping effects too.

To what extent do the looping effects of human kinds transfer to psychology? Hacking (1995) has widened his scope introducing a variety of kinds that are relevant for this transfer: second order kinds, biologized kinds, inaccessible kinds, administrative kinds and self-ascriptive kinds. These will be further elaborated below. Historical psychologist Kurt Danziger argues that typical psychological categories as intelligence, learning and motivation are human kinds (1997; 1999). His account will be presented in order to see how human kinds and looping effects might affect psychology.

Varieties of human kindness

Hacking mentions normalcy as an important second order kind. 'Second order' because normalcy is a property of some kind: normal behavior, normal learning, normal functioning, normal memory and so on. Nothing is just normal, there's always a normal something, and these classifications are created and change as well, together with their abnormal counterparts.

"Normalcy provides a remarkable all-purpose vehicle for characterizing new human kinds as deviations from the norm. Typically the human kinds that involves normalcy are defined in terms of abnormality." (1995, 371)

With second order kinds such as normalcy, a significantly bigger part of heterogeneous psychology seems to be subject to looping effects. After all, the introductory psychology books tell us that it is not merely the science of abnormality, but that normal behavior is studied too. Also, the norm is an important feature of psychological methods. Knowledge is gathered in terms of mean differences.

Human behavior and groups of people are organized around a norm. Not merely is normalcy studied, but a norm is created or discovered in psychology.

Hacking gives an example of a human kind that can be considered normal:

“Let us now add an example to our repertoire; let it have nothing to do with deviancy, let it be rich in connotations of human practices, and let it help furnish the end of a spectrum of making up people opposite from the multiple personality. [...] a Parisian *garçon de café*, about whom Sartre writes his immortal discussion of bad faith [⁶]: *His movement is quick and forward, a little too precise, a little too rapid. He comes toward the patrons with a step a little too quick. He bends forward a little too eagerly, his eyes express an interest too solicitous for the order of the customer* (Sartre, 1956, 59).” (Hacking, 2002, 108-109)

The waiter acting with bad faith, acting under the description of *garçon de café*, is living up to his classification. Bad faith is very common: everybody acts under descriptions all the time. The waiter is an example of a normal human kind, even though Hacking sardonically wonders whether the boy would have escaped treatment by experts, if the café would have been a clinic. The classification *garçon de café* was made up and given new shape by the person acting under its description. There have been servants throughout history, but those were different kinds, different looping effects. Certainly it was not a kind found among cave men.

“Thus the idea of making up people is enriched; it applies not to the unfortunate elect but to all of us. It is not just the making up of people of a kind that did not exist before: not only are the split person and the waiter made up, but each of us is made up. We are not only what we are but what we might have been, and the possibilities for what we might have been are transformed.” (Hacking, 2002, 110)

Biologized kinds are also encountered throughout psychology. These are human kinds described in new biochemical, neurological and mechanical terms. However this does not prevent them from looping (Hacking, 1995, 372). Take depression. Thanks to innovative use of drugs, depression has increasingly come to be seen as a matter of neurochemistry (Dehue, 2008). Professionals, patients and their social environment see and experience this collection of behavioral and cognitive symptoms differently, for example as an illness that’s somehow more real, because it is supposed to be physical. This has probably led to more understanding of and patience with the depressed kind, for they cannot be held responsible for their deviant serotonin levels. “*Biology is exculpating*” (Hacking, 1995, 373), true. Nevertheless, with the new generation of antidepressants the depressed can take matters in to their own hands, thus becoming responsible for their own biology (Dehue, 2008). The understanding of depression has changed, depression itself has changed, and behavior has changed especially with regard to drugs.⁷ Again, the newly created classification will change the classified, so that the classification needs revision. Imagine for example, that depression once established as a matter of neurotransmitters will be diagnosed by measuring serotonin levels. Then it is likely that some currently depressed patients will no longer be considered as such, because not all

⁶ People are always free to choose, according to Jean-Paul Sartre, freedom is the basis of human existence. But awareness of this freedom means experiencing existential fear. In escaping this fear, denying the freedom to choose, a man is not true to his own being and acts with ‘bad faith’. The waiter in the example is aware that he’s pretending not to be free, he is clearly acting to be a waiter. (Hacking refers to the 1956 edition of *Being and nothingness: An essay in phenomenological ontology*. New York: Philosophical Library.)

⁷ According to Nikolas Rose we all have changed in slowly assimilating the mechanized and biologized vision of ourselves and we have become “neurochemical selves”. Rose, N. (2006). *The Politics of Life Itself: Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton NJ, Princeton University Press.

of them show deviant serotonin levels.⁸ With such a diagnosis probably the only approved therapy will be drug-therapy. Fortunately this is (still) just fiction, but it illustrates that biologized classification will also change the classified. It also greatly affects people and a looping occurs all the same. This also nicely illustrates how intervention, cause and classification are of a kind.

As Bowker and Star (2002) put it “[s]ystems of classification (and of standardization) form a juncture of social organization, moral order, and layers of technical integration” (33); “people get put into categories and learn from those categories how to behave” (311); and “when a new member is added to a class, this has ramifications for the class and the system of which it is part” (60). They show how looping effects or rather “convergence” of the classification with its constituents occurs in medical categorization. For example in tuberculosis, a diagnosis that has tremendous effects on people’s lives and hence on the further development of the illness. The illness takes many forms, the class has to constantly adapt to new ambiguous cases. It turns out that a class can never be as well-defined as scientists want it to be, because it depends on its fickle constituents. The classified can be joining, leaving and changing classes. As it became clear in the South African apartheid regime, neat classification even of something as basic as skin color collides with constantly changing practices, publics and realities. People can belong to various classes or they can belong to none of them. To make a match, either ambiguously developing reality has to be paralyzed into a neat scientific order, or classifications have to become fuzzier and messier to accommodate ambiguity and developmental change. More plastically put “the crack comes when the messy flow of bodily and natural experience must be ordered against a formal, neat set of categories” (2002, 68). Human kinds that are biologically approached still are human kinds. Medicalizing nor biologizing will prevent that the norm involved by classification organizes and influences the capricious flow of people.

Now, “what about human kinds in which the people classified cannot take in how they are classified?” (Hacking, 1995, 374). Some human kinds are inaccessible in terms of self-awareness. Children are often not aware of themselves as classified. Hofstee assumed that people have to be aware of their description, for the social scientific statement to be paradoxical. This way they consciously review their behavior and its scientific description with respect to each other, changing the conditions for making the statement. According to Hacking in such a case looping does occur, but socially rather than individually. The social network around the child is very aware of the classification and will act under its description. Possibly changing the situation and thus changing the classification. Hacking takes childhood autism as an example. This kind has changed throughout the years from being related to schizophrenia and due to ‘emotional refrigerators’ as parents, to a lack of a theory of mind (1995, 376-378). Autism is also an administrative kind, or a kind to which various disease entities and behavioral symptoms are administered. Many times fierce debates surround administrative kinds as to whom they are administered. Looping effects occur when “the administered react to their administration” (1995, 380).

Classification is not something that only happens from above. Hacking described two vectors of making up people: the experts creating a reality and people reacting and changing their classification from below. The human and social sciences have been very influential, because they institutionalized the measurement of man. However, according to Hacking, something changed in the course of the

⁸ Depression is a collection of symptoms, as presented by the DSM. It is not an entity causing the symptoms. There are many different depressions as there are many different combinations of symptoms that can be categorized as depression (Dehue, 2008).

twentieth century. People became actively involved in their classification. Human kinds can be self-ascriptive (1995, 381). The obvious example is homosexuality. Whereas at first people were classified by the experts, later on homosexuals took hold of their own classification with gay pride and gay rights. Similar developments can be seen in self help groups taking control of alcoholism, and people giving a positive twist to their diagnosis. ADHD, for example, is becoming a specific talent instead of a mental illness.⁹

Self-ascriptive, biologized or inaccessible, there are many ways of making up people and many times this happens in psychology. A significant argument for the relevance of Hacking's ideas for psychology is made by Kurt Danziger (1997). In his historical account of exemplary psychological concepts and their practices – intelligence, learning, behavior, motivation and personality – he declares that psychological categories are human kinds.

Psychological categories as human kinds

Every history is different for every psychological category but the nominalist title of his work says it all. In *"Naming the mind"* Danziger describes how psychological notions have changed since they were conceived of within scientific practices, for example intelligence. This depended to a great extent on how intelligence found its use, how it was measured and in what context. He describes how categories did exist before they were appropriated by psychology, the passions for example, but in becoming psychological they changed into emotions. They were named and conceived of in a different way, stressing human activity ('motion') instead of passivity. Other categories like motivation and attitudes are of very recent descent, made in industrialized and commercialized society.

"Psychological categories were always relevant to the lives of those who used them, whether they were ordinary people or experts. Changes in these lives were accompanied by changes in psychological categories. [...] The categories discussed in this book are all human kinds rather than natural kinds. [...] They do refer to features that are real. But it is a reality in which they are themselves heavily implicated, a reality of which they are part." (1997, 189-191)

Danziger's approach is clearly similar to Hacking's. Psychological categories are considered to be historical but real. As human kinds they are relevant and peculiar to people and are scientifically approached. However, the kinds Danziger investigates are very general. They are not kinds of people, nor used to characterize a certain kind of person. Because they are not classifications, they do not entirely fit Hacking's criteria for human kinds. Yet the people with some kind of personality, some kind of intelligence or some kind of motivation do. As second order kinds, attributes of kinds of people, or as more discrete classes on continuous scales like intelligence and motivation, psychological categories could fit the profile of human kinds. According to Danziger they are certainly not natural kinds:

"The sorts of things that psychology takes as its objects, people's actions, experiences and dispositions, are not independent of their categorization. There are two reasons for this. First, the individuals who are the carriers of psychological objects are able to represent these objects to themselves in a self-referential fashion. [...]"

⁹ Heerings, M. (2009). *Ik ben 100% ADHD! ADHD discours, identiteit en regulatie*. Scriptie Master Medische Antropologie en Sociologie, Universiteit van Amsterdam.

Secondly, psychological properties are intelligible features of the world only by virtue of their display within a discursive context.” (1997, 190).

Indeed, this suggests a looping effect for psychological categories, setting them apart from natural kinds. However, an important difference between Danziger and Hacking is indicated too. The emphasis on the discursive context or social practices, that is the interaction *before* classification, actually is Danziger’s alone. Hacking emphasizes the looping effect, the interaction that occurs *as a result of* classification in the human and social sciences.

Danziger states that “*systems of classification depend on the people doing the classifying*” (1997, 189) and maintains that

“Scientific psychological categories still have to be consonant with culturally sanctioned assumptions about humans and their relationship to the world, and they also continue to be shaped by established scientific traditions.” (1997, 184)

In naming the mind psychologists had to strike a balance between the ideal of universalistic and uninvolved science on the one hand, and the practical context with its professional and institutional demands on the other.

“...there was a melding of a putatively biological category with categories derived from special social practices. I.e. social selection in the case of intelligence, educational practices in the case of learning, and management practices in the case of motivation.” (1997, 183)

Psychological categories hence encompassed both universal biological and a local social meaning. The difference between fundamental and applied psychology that Danziger indicates here, is not mentioned by Hacking. The latter focuses merely on the “*controversial applied knowledge*” typical for the “*marginal, insecure, but enormously powerful human and social sciences*” (1995, 351-352). Apparently for Hacking, these are applied sciences, the realms where looping effects originate.

Yet “historical studies tend to show that psychological categories vary over time and that these variations precede, rather than follow, empirical findings [...] psychological theory requires some pre-understanding of that which it is a theory of.” (Danziger, 1999, 78-79)

Both scholars assert that kinds or categories are value laden, but for slightly different reasons. Danziger states that the categories in psychology are culturally and historically grounded and Hacking states that human kinds are intrinsically value laden, that is, classifications concerning people matter to them. Contrary to Danziger he distances himself a little from social constructivism.

“Yes, I think that the human differs from the natural, but not because human kinds are social constructions while natural kinds are discovered in nature. [...] Perhaps the *Verstehen* and the construction distinctions are both right, but they are not mine.” (1995, 362)

Hacking leaves the question whether human kinds are constructed or discovered in the middle. Depending on the human kind it can be either constructed or discovered, as can natural kinds.¹⁰ Both natural kinds and human kinds are historical. Many historical events and practices preceded the

¹⁰ Some natural kinds might have been discovered, like the elements found in nature. Others are more likely to have been invented, brought into being by manipulation in laboratories. For example plastic and synthetic fabric would not have existed without human intervention.

discovery or creation of kinds, this does not happen in a vacuum. Yet for Hacking the historical context does not distinguish human from natural kinds. What interests him are the effects of the created or discovered kinds and that they are different for human kinds and natural kinds. For Danziger cultural and historical conditions do determine human kindness. The discursive context influences our worldview and our 'discoveries', especially in psychology.

"Identifying experiences, actions and dispositions is not like sticking labels on fully formed specimens in a museum. Psychological objects assume their identity in the course of discursive interaction among individuals." (Danziger, 1997, 190).

Whether psychological categories, like intelligence, learning and motivation, are human kinds á la Hacking depends on the effect they have on human beings and subsequently on themselves. Ultimately, to investigate whether a psychological category is an interactive human kind is to describe its looping effect.

Hacking and Danziger give reasons to expect that looping effects occur throughout psychology. However, their studies have not investigated this so far. To see whether a psychological category unlike Hacking's usual examples is a human kind making looping effects, a study is needed. Preferably of a concept found in many different psychological approaches. An eligible candidate was mentioned in the introduction. Creativity was explicitly banned to psychology by a philosopher of science, but hasn't ceased to inspire philosophers. Creativity delightfully chases its own tail, when one asks for its history of being, for how it has been constructed, invented, discovered, or created. Such a kind begs for a rollercoaster ride. As a psychological concept it has been an increasingly investigated and in public discourse it is an increasingly popular adjective. Do the conceptions in scientific and public domains have anything to do with each other? Is a scientific norm influencing creativity practices? Do people classified as creative influence their classification, the understanding of creativity? Investigating creativity will shed more light on looping effects in psychology, on the differences and similarities between Hacking and Danziger, and on the relation between psychology and its public.

2. Creativity, history of a psychological category

To properly introduce creativity to Hacking and Danziger a story has to be told. The tale begins once upon a time in the hands of the gods. For many ancient cultures creativity was behold to those with the supernatural powers to create something out of nothing. When a mortal succeeded in being a creator, his source of inspiration would still be divine (Simonton, 2005). "Tell me, o muse," was the ancient Greek request for divine initiation of the creative process. The muses, the nine daughters of supreme deity Zeus each representing one of the ancient art forms, were called upon to breathe spirit into (to 'inspire') an artists' work. The 'genius' originally was the personal guiding spirit in ancient Rome. Later on it came to refer to a specific talent and later still it would become a form of address for a person with a specific talent. From having a genius people went to being a genius. Inspiration has been closely related to creativity throughout the centuries, as something divine, spiritual and eventually human.

Now, the muses inspired poetry, dance, music and theatre. Being a sculptor or sophist, even a creative one, did not require a muse's involvement. Sculpturing and rhetoric were crafts that involved skills or expertise. Creativity in many cultural traditions was a matter of craft. Throughout the middle-ages crafts were passed on from generation to generation. A master would teach his skill to his apprentice, whether it involved basic carpentry or elaborate woodcarving, simple cloth or decorative tapestry. First individually in a workshop, later more collectively in guilds or studios, teaching took place. The church used to be the prominent customer for the ornaments that were made. Art was preceded by skillfully made work, creative artifacts by humble tradition. Painters were considered artisans – they not even used to sign their work – until the early renaissance in Italy. Johann Sebastian Bach, now worshipped as a musical genius, in his own time was merely a very skilled composer. His was a humble soul producing music for worshipping the almighty Creator. With late classicism, at the time of Beethoven, composers ceased to be craftsmen (Simonton, 2005).

Creativity was unhooked from craft and divine inspiration particularly within Western society, where during the renaissance the dynamics between god and man changed. A context of economic developments, discoveries and inventions, made an alternative way to think about human beings possible. Humanism placed mankind instead of godness at the center of attention. Therefore art, as a matter of individual status, could come into being. The (Italian) nobility recognized the value of fine work, setting in motion the metamorphosis of the talented craftsman into a unique artist.

Still, many arts were believed to involve the acquisition of special expertise. That those willing to study and practice would be able to attain the same level as the 'natural' genius, was a belief academically propagated (Simonton, 2005). Art was institutionalized in academies and museums from the 16th century onwards, simultaneously establishing art criticism. In the 18th century creativity was perceived to be fairly rational, that is "*creativity is generated by the conscious, deliberating, intelligent, rational mind*" (Sawyer, 2006, 15).

Industrialization brought changes in the perception of art and the artist. The materials, such as paint, came ready made out of the factory and no longer required elaboration by the painter. The artist could now leave the studios and academies to become more independent. It was during this time that 'originality' changed meaning. It was no longer a well crafted imitation of nature, but a break

with (academic) convention.¹¹ The individuality of creativity was reinforced, the isolation of the artist from society established.

With 19th century romanticism the artist became the socially deviant, emotionally tormented but brilliant individual he still often is perceived to be in Western society. He was no longer a vessel for the gods, revealing their perfection. Inspiration turned into a personal matter. Therefore an artist now expressed his own individual spirit. Creativity, as a characteristic of the artistic genius, was associated with spontaneous expression and mental disorder. For the romantic soul creativity was not necessarily divine but definitely exceptional. Fair amounts of absinth, and muses suddenly turning green, were thus completely appropriate. Secularization and the Enlightenment had replaced spiritual creativity with a more natural variant. Evolution theory contributed to the calling into question of the divine creator, and suggested that nature itself had to be creative. One popular naturalistic viewpoint, reinforced by romantic stories of creative opium stupors and other pathological conditions common among artists, was that creativity was related to madness (Simonton, 2005). Creativity as a sign of madness lingered in the early 'psy' disciplines. For Freud it was neurotic behavior and for William James it reflected borderline personality. The artist is still often viewed as deviant. That the life of an artist is tragic and that his art goes unrecognized are popular romantic ideas.

For being defined as natural and individual, creativity was also taken to be innate. Extraordinary talent or genius was only bestowed upon certain individuals. As the muses used to inspire some but not others, now being a talent came naturally. In a similar romantic vein it was supposed that children, pure and innocent compared to adults, are more creative and that adult rationalism interferes with the child's intuitive creativity. In short "[r]omanticism is the belief that creativity bubbles up from an irrational unconscious, and that rational deliberation interferes with the creative process." (Sawyer, 2006, 15).

Whether it is deliberate work or spontaneous expression, both rationalists and romantics take creativity to be individual. As a characteristic of an individual, the artist, it has been synonymous to artistic. Creativity was thus tightly connected to individualism and art. In cultures where the separation between art and craft was not made – or the individual was not that explicitly separated from the collective or the divine – creativity is a different story. It is in Western society that rationalist and romantic creativity have been coexisting and alternating as dominant conceptions.

Sawyer (2006, 17), suggests postmodernism is a return to a more rationalist creativity. Yet romantic criteria persevere. No huge amounts of money would be paid at Sotheby's if it weren't for work by exceptionally creative individuals. Art institutions keep an exclusive creativity alive, for their own sake and for the sake of art as we know it, as something extraordinary. Thus romantic creativity is still widely encountered. However, innate creativity is not too practical for academic purposes. Therefore some rationality is assumed, declaring artistry learnable. The creative individual has been wandering between originality and academic convention; interpreting creativity in various ways, from mechanical productivity to divine intervention. The greater public typically feels more for the romantic approach of than for postmodernism. This romanticism is usually moderate, it allows for

¹¹ Becker, G. (2000-2001). The association of creativity and psychopathology: Its cultural-historical origins. *Creativity Research Journal*, 13 (1) , pp. 45-53.

mastering an art. Nevertheless when related to art, creativity is believed to involve intuition and expression, and even mental disorders.

Creativity has not been exclusive to the realms of art. Like artistic creativity, scientific creativity has been romantically and rationally approached. Particularly great scientific discoveries were like brilliant works of art. For its individuality creativity was often a matter of genius. This romantic idea influenced how scientific creativity has been perceived. The image of a nutty inventor or great thinker, isolated from the world in a laboratory or buried in books, is all too familiar. Examples of scientific creativity well known by the public are the celebrated eureka moments, in the bathtub, in bed or on the bus. With Einstein in the lead they illustrate a romantic admiration of geniuses, their great discoveries as a measure for their creativity. Generally, when it comes to scientific creativity, the focus has been on individual insights instead of on the collective efforts (Faas, 1998). The romantic perception of scientific creativity lingered among scientists too, even though one would expect the scientific preference to be rationalist. With advocating its method from the time of Francis Bacon and onwards, science has defined itself as more of a craft. Because science distinguished itself by rigor, scientific creativity has also been perceived as more rationalist than romantic. That is, hard and deliberate work rather than extraordinary talent (Simonton, 2005). Indeed, many creative scientists had significant expertise in their area before they came up with new insights. Unconventional ways of thinking do seem to spark ideas however. Whereas dreaming is not a very methodological approach, it has generated great discoveries. With Popper's philosophy of science, creativity was placed in the context of scientific discovery, where the logically unexplainable and spontaneous insights occur. This separation from scientific justification unhooked scientific method from the myriad metaphysical ways of creativity and freed scientific imagination from being reasoned away. As such scientific work is perceived to be rational, yet creativity is approached romantically. Of course, Popper's showpiece is also the public favorite: Albert Einstein.

On the historicity of creativity Danziger and Hacking would coincide. In the first half of the twentieth century creativity found itself alternating between nature and nurture, disorder and talent. From this chaos it emerged as a psychological subject. Freud and James fashioned creativity to be romantically deviant. Popper did not insist on the logic of creativity either. The scientific field of creativity has nonetheless attempted a rationalist determination of creativity. Whether a scientific norm was found, particularly interesting from Hacking's point of view, will be further elaborated in the fourth chapter. Danziger would be interested in cultural discourse and creativity practices. Therefore the question how creativity has been conceived in the public domain will be answered first.

3. Creativity in public

Creativity has continued to be both romantic and rational for the Western public. Some insist that the general public conception of creativity is romantic and that this urgently needs to be changed. On the other hand a change of creativity conception in favor of rationalism seems quite successful. The distinction has become vaguer, with elements from rationalism and romanticism combining into more contemporary points of view. A kind of romantic creativity is often encountered in education, a kind of rationalist creativity exists in marketing and in politics it is mostly a convenient combination.

Creativity and education

Educational practices, likely to reflect how creativity has been practically and publicly understood, suggest that the romantic conception of creativity has been quite common. Even though in academic circles most knowledge and skill is perceived to be learnable, artistic romanticism rather than scientific rationalism has determined creativity in education. The formation of a new discipline on raising and educating children was greatly influenced by romanticism. Indeed, creativity was introduced in education by romantic pedagogy.

“Froebelian-inspired kindergarten advocates in America originally linked the concept of creativity to educational aims on theological grounds. The strength of their spiritual convictions, which assumed a connection between the child’s inner powers, the impulse to creative activity, and the Almighty, secured a place for creativity in the field of early childhood education. As the child study movement gained momentum in the US in the late nineteenth century, creativity continued to occupy a prominent position in descriptions of childhood education, although the rationale shifted from faith-based to quasi-scientific and, eventually, to psychological theory.” (Feldman & Benjamin, 2006, 319)

As in the US, Germany and France, in the Netherlands there is a legacy of Fröbel’s *kindergartenpädagogik*. Creativity is often represented as artistic activity. Originally this meant educative play. In the seventies however, the heydays of humanist psychology, children were no longer playing around with clay in the classroom. They were self actualizing and expressing themselves freely (Brugman & Dudink, 1976). In the popular work by Carl Rogers and Abraham Maslow, as a variation on romantic conceptions, creativity was the pinnacle of individual freedom, self fulfillment and personal growth (Dudink, 2008). This had consequences for how creative activity was perceived in the classroom. Yet with different objectives, mastering skills or healthy personal development, the creative activities were the same.

“Stimulate the creativity of your pupils. [A] variety of handicraft items [...] will entertain your class for hours. What about quality folders, sticker figures, embroidery cards, coloring pictures, paint tor clay? Guaranteed fun for your pupils.”¹²

Being creative at school has not involved much more than drawing, cutting and pasting (Breeuwsma, 1994). In education creativity is still understood as something artistic, Dudink confirms.¹³ Creatively rearranging $3+5=8$ is out of the question and drawing is not taken as seriously as math, for it cannot be that systematically taught and evaluated (Breeuwsma, 1994). Creativity receives little attention, according to some because teachers don’t know how to teach for creativity (Sternberg, 2003), but most importantly because creativity is not considered as something a child can learn.

¹² <http://www.uitgeverijstam.nl/creatief-op-school>

¹³ Interview with developmental psychologist Ad Dudink on 27-10-2009.

“According to the romantic, intuitive talent is innate, a gift that can be squandered but cannot be acquired – or taught. This romanticism has a defeatist air, for it implies that the most we can do to encourage creativity is to identify the people with this special talent, and give them room to work. Any more active fostering of creativity is inconceivable.” (Boden, 2004, 15).

The child simply does or doesn't have talent. Drawing as a school subject is not meant to help a child to become an artist, but believed to be healthy for its development. This romantic treatment of creativity has been heavily criticized in recent years by creativity researchers and educational innovators. Some say that the tasks that are supposed to be creative actually limit the child: it is supposed to wait for and imitate the teacher instead of imagining independently (Beghetto & Plucker, 2006). It is suggested that creativity *can* be more actively fostered and urgently needs to be. Otherwise, aiming at rational capacities only, children are educated out of their creativity:

“All kids have tremendous talents. And we squander them, pretty ruthlessly [...] creativity now is as important in education as literacy, and we should treat it with the same status. [...] There isn't an education system on the planet that teaches dance every day to children in the way we teach them mathematics. [...] as children grow up, we start to educate them progressively from the waist up. And we focus on their heads. And slightly to one side.”¹⁴

Indeed, the rationalist emphasis, taking children to be little scientists and aiming their education at the ideal of a university professor¹⁵, is criticized for leaving too little room for creativity. In the Netherlands even special education, which has traditionally been more concerned with creativity, cannot avoid the test (CITO¹⁶) determining language and math capacities at the end of primary school. This way, other talents and creativity are not acknowledged as they should be. “*As if laboratory technicians and engineers are the ones earning the money in the Netherlands, instead of the bankers, jurists, architects and fashion designers!*” (Engelen, 2008, 41¹⁷). Sternberg (2003, 325) affirms that “*schools [...] tend primarily to value memory and analytical skills, but creative and practical skills are at least as important to success in life as are memory and analytical skills, and may even be more important, especially after formal schooling ends. If so, then we ought to be nurturing and rewarding rather than ignoring or even punishing students who are high in creative or practical skills.*”

Note that, in the plea for more creativity in education, some romantic ideas about the child's intuitive creativity are maintained and that rationalist ideas are criticized too. But mainly the romantic ideas are under attack. “*In practice, misconceptions about creativity collectively serve to marginalize creativity within classrooms. Perhaps the most pernicious is the belief that creativity is a form of negative deviance.*” (Beghetto & Plucker, 2006, 322). Many have engaged in definitional work “*to unhook creativity from 'artiness', individual genius and idiosyncrasy, and to render it economically valuable, observable and learnable*” (McWilliams & Dawson, 2008, 636-637).

Educational innovators and creativity researchers are joined by creativity guru's in the chorus of critique on the romantic creativity perception. Behind the calls for changing creativity practices

¹⁴ Robinson, K. (2006) http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html

¹⁵ Enhanced by Piaget's work on child development (Breeuwsma, 1994).

¹⁶ Interestingly this testing tradition was initiated by eminent Dutch psychologist A.D. de Groot. Apparently the emphasis on certain intellectual skills in education, eventually limiting the child's creativity according to contemporary criticism, was enhanced by a prominent Dutch academic.

¹⁷ Engelen, E. R. (2008). *Milde meritocratie : een onderwijsagenda voor de 21ste eeuw*. Amsterdam: Stichting Waterland.

resides a creativity conception reminiscent of rationalism. The relatively new discourse on innovation suggests that there's more to public creativity than romantic artistry. Particularly economic benefit.

Creativity and innovation

The year 2009 has been the European year of creativity and innovation. Upon this occasion a manifesto¹⁸ was presented, it states

“The world is moving to a new rhythm. To be at the forefront of this new world, Europe needs to become more creative and innovative. To be creative means to imagine something that didn't exist before and to look for new solutions and forms. To be innovative means to introduce change in society and in the economy. Design activities transform ideas into value and link creativity to innovation. [...] Creativity is a fundamental dimension of human activity. It thrives where there is dialogue between cultures, in a free, open and diverse environment with social and gender equality. It requires respect and legal protection for the outcomes of creative and intellectual work. Creativity is at the heart of culture, design and innovation, but everyone has the right to utilise their creative talent. More than ever, Europe's future depends on the imagination and creativity of its people.”

The articles of the Creativity and Innovation European year 2009 manifesto

1. Nurture creativity in a **lifelong learning** process where theory and practice go hand in hand.
2. Make **schools and universities** places where students and teachers engage in creative thinking and learning by doing.
3. Transform **workplaces** into learning sites.
4. Promote a strong, independent and diverse **cultural sector** that can sustain intercultural dialogue.
5. Promote **scientific research** to understand the world, improve people's lives and stimulate innovation.
6. Promote **design** processes, thinking and tools, understanding the needs, emotions, aspirations and abilities of users.
7. Support **business innovation** that contributes to prosperity and sustainability.

Creativity is a new ideology that has been growing on Europe, recurring in European governmental proposals on economy and education. This started with the Lisbon European Council in 2000, when the shift to a knowledge economy was recognized and a European educational strategy was launched to enhance it. This strategy focused on basic skills or key competences¹⁹ to enable lifelong learning. In the 2005 European commission proposal on key competences creativity is administered a particular role: “*critical thinking, creativity, initiative taking, problem solving, risk assessment, decision taking, and managing feelings constructively play a role in all eight key competences*”.²⁰ In the follow up on the Lisbon strategy, it is concluded:

“More than ever Europe's success in global competition is dependent on its skills and innovation capacities and a swift transition to a low-carbon, knowledge-based economy. [...] Innovation and growth will be weak without

¹⁸ Ambassadors of the Year of Creativity and Innovation (2009), Manifesto for Creativity and Innovation in Europe: http://www.create2009.europa.eu/about_the_year/manifesto.html

¹⁹ The key competences are: 1. Communication in the mother tongue; 2. Communication in the foreign languages; 3. Mathematical competence and basic competences in science and technology; 4. Digital competence; 5. Learning to learn; 6. Interpersonal, intercultural and social competences and civic competence; 7. Entrepreneurship; and 8. Cultural expression.

²⁰ Proposal for a Recommendation of the European Parliament and of the Council on key competences for lifelong learning, Brussels 10-11-2005, p. 13.

a broad foundation of knowledge, skills and competences which promotes talent and creativity from an early age and is updated throughout adulthood.”²¹

The new strategic framework for European cooperation in education and training "ET 2020" states as a long term objective “*Enhancing creativity and innovation, including entrepreneurship, at all levels of education and training.*”²²

Within this strategy, that set the stage for the European years’ theme *Creativity and Innovation*, creativity is understood as something that can be enhanced or fostered. In the Netherlands the EU guidelines are implemented encouraging talent at all levels of education, as seen in a recent report.²³ Talent is conceived as something every individual has with respect to some area of expertise. It needs to be recognized, so children need to be exposed to different contexts to discover in what area they can excel. This can be anything from car mechanics to jazz music. Creativity is democratically available for everybody. However in this particular report it is not mentioned as a general ability, nor is it perceived as something that can be taught. Some romanticism lingers, yet everybody has a talent and thus is creative with respect to some activity. Thereby everybody can contribute to the knowledge economy.

Creativity is tightly connected to innovation and economic progress. “[I]nnovation and creativity are essential for sustainable growth and economic development” and “of course, the ultimate cause of all innovation is human creativity”.²⁴ Creativity is something to be stimulated and protected. Creativity and innovation even coincide, particularly in creative industry, as mentioned in recent Dutch policy documents.²⁵ The creative economy is on the rise “drawing the spheres of innovation (technological creativity), business (economic creativity) and culture (artistic and cultural creativity) into one another, in more intimate and more powerful combinations than ever.”²⁶ Thus, creativity is the new ideology.

How creativity is understood in the context of the past European year, in relation to innovation, is similar to how it has been understood in marketing for years. In this field creativity is considered a general learnable ability.

Marketing creativity

The majority of creativity techniques, meant to improve creative thinking and the production of innovative ideas, have been developed for business purposes. The very popular technique brainstorming – suspending judgment to come up with as many ideas as possible meant to increase

²¹ Key competences for a changing world; *Draft 2010 joint progress report of the Council and the Commission on the implementation of the “Education & Training 2010 work programme*. Communication from the commission to the European parliament, the council, the European economic and social committee and the committee of the regions, Brussels 25-11-2009, p. 10-11.

²² http://ec.europa.eu/education/lifelong-learning-policy/doc28_en.htm

²³ Sligte, H., Bulterman-Bos, J., & Huizinga, M. (2009). *Maatwerk voor latente talenten? Uitblinken op alle niveaus*. Amsterdam: SCO-Kohnstamm Instituut.

²⁴ Business and Industry Advisory Committee to the Organisation for Economic Co-operation and Development (2003). *Creativity, innovation and economic growth in the 21st century. An Affirmative Case for Intellectual Property Rights*. Paris: BIAC, p. 1-2.

²⁵ Kamerbrief Waarde van creatie, brief Cultuur en Economie, Kamerstukken II 2009-2010, 27406, nr. 154. Kamerbrief Ons creatieve vermogen, brief Cultuur en Economie, Kamerstukken II 2004-2005, 27 406, nr. 57.

²⁶ Florida, R. (2002) *The Rise of the Creative Class. And How It's Transforming Work, Leisure, Community and Everyday Life*. New York: Basic Books, p. 201.

productivity in groups – was already popularized in 1953.²⁷ Nowadays on the World Wide Web ‘creativity’ is mostly encountered together with techniques to improve it. Upon consulting Google it turns out that staggering amounts of creativity techniques and creativity training programs are offered. How do guru’s and their retinue sell creativity? Some examples from Dutch websites:

Creative thinking: make the most of your own and your team’s creativity. [...] In this course it will become clear that creative thinking is not a gift but a skill that everybody can make their own. Participants are taught a couple of methods and techniques to make them able to leave the “beaten track” and to increase creativity.²⁸

[...] everyone can sharpen his creative talent and use it to have a fresh view on problems and opportunities, both for him and for the organization and society he takes a part of. [...] All techniques are aiming at breaking out of regular patterns of thinking to get new ideas and insights.²⁹

Actually everybody is continuously creative: no two thoughts are ever the same. However, some people we call ‘creative’ and you might think you are not creative yourself. Creativity is not beheld to writers and artists. Creativity is professional competence also needed in less illustrious jobs. Creativity doesn’t mean getting a regular flash of genius, but rather coming up with original solutions relevant for your work. Everybody is creative by nature and can learn to better put their creative skills to use.³⁰

Everybody is creative! You can stimulate and improve everybody’s creative thinking! You can learn creative thinking! [...] First we make people aware of the difference between logical and creative thinking. Then we extend the creative attitude by actively reflecting on the importance of postponing judgment and thinking of many alternative solutions. [...] We teach people to play with creative skills as imagination, associative thinking and perceiving. We let people experience how they can ‘simply’ break through thinking patterns. This is called diverging. Diverging is nothing without converging: the ability to select the good ideas and to develop them into realistic proposals.³¹

Creativity is understood as divergent thinking, breaking out of regular thought patterns, coming up with new ideas or original problem solving. It can be learned. It is a professional skill. It improves performance either individually or in groups. As a capacity for being more successful, it is also offered to students. Of course an important skill like creativity deserves to be developed early in a career or even early in life. Teachers are offered special programs to learn how to help their students to be more creative. Exploring ‘creativity and education’ on the internet means running into the suggestions to improve education with the application of techniques.

As a teacher dare to innovate in education! Become competent in applying creative thinking techniques and let your students and colleagues come up with original ideas and solutions more quickly and more efficiently!³²

More creativity in the classroom! [...] take a little time every day to have a creative experience [...] to take children out of their regular thought patterns.³³

²⁷ Osborn, A.F. (1963) *Applied imagination: Principles and procedures of creative problem solving* (Third Revised Edition). New York, NY: Charles Scribner’s Sons. (First published in 1953)

²⁸ Translated from <http://www.purplemonkey.nl/page.aspx?id=51>

²⁹ Translated from <http://www.caw-windekind.be/page.php?pageid=3>

³⁰ Translated from <http://www.leren.nl/artikelen/2005/creatiever-woorden.html>

³¹ Translated from <http://www.cocd.org/nl/node/43>

³² <http://www.cocd.org/nl/node/814>

³³ <http://www.onderwijsmaakjesamen.nl/thema/creatief-denken/meer-creativiteit-in-de-klas/>

Creative thinking has gotten increased attention in business, healthcare and the government. Also in upbringing and education more attention is demanded for the development of creativity. [...] Creative thinking is aiming at producing new knowledge – insights, ideas – and talent development. Together with the disciplines where acquiring standard knowledge holds a central position, creative thinking forms the basis of progress. [...] Let yourself, your colleagues and your students be inspired [...].³⁴

Be it as individual talent worth encouraging for general economical growth or as a general capacity worth learning for personal benefit, EU politicians and creativity technicians agree that creativity is something economically valuable that everybody has at their disposition. It is often remarked that this is a view contrary to popular belief, needing to find its way to educational practice.

At the end of the European year of Creativity and Innovation the results of a survey asking teachers about creativity in the classroom were presented. They suggest that the romantic view is not that dominant as many make us believe, even though not all European nationalities were represented and it's quite probable that mostly teachers already interested in the subject of creativity participated:

“Literature reports that very often people, including teachers, refer to creativity as being related exclusively to artistic or musical performances, as springing from natural talent, and as being the characteristic of a genius. These myths about creativity stifle the creative potential of students and create barriers to fostering creativity in schools. To a large extent, the teachers that took part in our survey have an understanding of creativity which goes against such myths. Almost all teachers who took part in the survey are convinced that creativity can be applied to every domain of knowledge (95.5%), and to every school subject. More than 60% are even strongly convinced of this. They confirm this view very clearly by disagreeing to a large extent with a statement restricting creativity to the realm of artistic and cultural expression (85%). An impressive majority of teachers believe that everyone can be creative (88%) and that creativity is not solely a characteristic of eminent people (80%). However, only 45.8% disagree that creativity is an inborn talent. This contrasts substantially with an overwhelming majority of teachers (94%), who support the idea that creativity is a fundamental skill to be developed in schools. Some teachers nevertheless express a more nuanced opinion when it comes to the feasibility of teaching creativity (70% agreeing that it can be taught, 23% neither agreeing nor disagreeing) and are even more dubious regarding the possibility to assess it (50% agreeing that it can be assessed, 33% neither agreeing nor disagreeing).”³⁵

One, two or more public creativities

Contemporary public creativity appears to divide in two broad currents. On the one hand creativity that is economically beneficial and available for everybody, on the other hand creativity that is artistic and exclusive. This could be a new version of the romantic versus rationalist creativity debate. Gibson (2005) perceives a similar division in the public discourse on creativity and education in England, and organizes it into ‘instrumentalist’ and ‘individualist’. Romantic individualism might be the correct designation for general public ideas about creativity, whereas policy makers and business innovators stress a more instrumental creativity. However, the general public ideas about creativity might not be as general as they are made out to be. The discourse of creativity and innovation seems to be quite successful, examples of people nowadays maintaining that creativity is not for everybody and behold to the arts are actually hard to find. Maybe because they would be scorned for being

³⁴ <http://www.cocd.org/nl/node/814>; <http://www.denkenomeenhoekje.nl/onderwijs.php>;
<http://www.onderwijsmaakjesamen.nl/thema/creatief-denken/meer-creativiteit-in-de-klas/>

³⁵ Cachia, R., Ferrari, A., Kearney, C., Punie, Y., Van Den Berghe, W., Wastiau, P. (2009) Creativity in Schools in Europe: A survey of Teachers. European Commission Joint Research Centre: JRC55645.

politically incorrect upon uttering such ideas. Even when creativity is considered a talent, it is not exclusive, for talents are democratically acknowledged in all domains. This is a weakened form of romantic creativity. The differences between the two views are sometimes small, as creativity is considered something individual by either of them. Furthermore, romantic and instrumentalist elements are freely combined, on the self-help shelf for example.

New Age theories combine spiritual enlightenment with ideas from humanist psychology about self actualization, defining creativity as both divine inspiration and personal expression (Sawyer, 2006). On the New Age shelf “*creativity is a route to fulfillment that you can either add to what you’re already doing or make your central religion.*”³⁶ This shelf, presenting creativity as *Unleashing the forces within*, is not too far removed from psychological self help books and the literature on increasing your creativity for business purposes. Note that the creative route to fulfillment is not exclusive, for self help books make something accessible for their readers, even inspiration. It seems that elements from the ancient inspirational, romantic *and* instrumental views on creativity constitute the New Age conceptualization: divine inspiration is a source for individual growth is a source for financial success.

When everybody is entitled to their own opinion on creativity, either because it has been related to art and matters of taste or because everybody can be creative in his own way, there are as many different creativities as people. From a romantic point of view nobody is able to determine creativity, because it is spontaneous and mysterious. From an instrumental point of view creativity should not be too strictly allocated either, as it is too economically valuable. The list of those invited to be ambassadors of the European Year of Creativity and Innovation reflects a generous interpretation of creativity: scientists, artists, designers and innovative businessmen. It would appear that the fields of arts, sciences and business are merging, as Florida suggested. In the middle of it all education has been bombarded as the field responsible for good creativity management. However, with so many different creativities surrounding it, a straightforward program is hard to realize. Teachers are called upon, of course, to be creative.

Within history and cultural discourse creativity already is a loopy concept. Thus far, we’d have to agree with Danziger, that the concept is formed and twisted by cultural interaction, adapted to practices of education, business and politics. Even science is hard to dissect from this intricate relation. However, as with many popular beliefs, scientists tend to critically review and renounce beliefs about creativity. Abstracting themselves away from messy cultural interaction.

Between myths and scientific norms

Scientists are specialized in ordering reality. Can they create a little order in the chaos of creativity? They certainly have been busy with discerning the creativity ‘myths’. Myths are the beliefs that endure while research suggests otherwise (Sawyer, 2006). Two myths mentioned by Sawyer suggest that the scientific understanding of creativity is exactly opposite to the economically beneficial understanding as described above. Namely *everyone is creative* (22) and *creativity is the same thing as originality* (23). He argues that everyone is believed to be creative due to the current ideology of democracy and forthcoming fear to make value distinctions. With respect to originality he states that this term has meant different things throughout history. It used to refer to a very well made imitation of nature, now it refers to something that did not exist before. Novelty is a problematic criterion

³⁶ Maisel, E. (2000). *The creativity book: a year’s worth of inspiration and guidance*. New York: Jeremy P. Tarcher/Penguin.

however, for nothing is ever absolutely novel³⁷ and every inventor stands on the shoulders of the ones before him. In other words, people are creative within a tradition (Sawyer, 2006; Boden, 2004; Faas, 1998). For many scientists *“It turns out that some training courses and advice books accept the creativity myths that we know are false.”* (Sawyer, 2006, 296). Most myths however reside in other common public beliefs about creativity that are not exactly identical to the economically beneficial beliefs. Trainers and coaches criticize the public beliefs also criticized by scientists: the romantic myths that creativity depends on divine sparks of inspiration or is only found in exceptionally gifted people. If creativity is something that can be trained or investigated, it has to be accessible. However, the romantic view holds that creativity is too mysterious for science to explain (Boden, 2004, 14) and probably too exceptional or spiritual to market. Other common romantic beliefs are also declared to be myths by scientific research, such as *children are more creative than adults* or *creativity is expressiveness* or *creativity is related to mental illnesses* (Sawyer, 2006, 19-21).

Now, to make matters worse, on whether some ideas about creativity are myths or not, scientists widely disagree. According to Sawyer it is a myth that everyone is creative. He is a proponent of the sociocultural approach to creativity: it is a culturally laden characteristic. According to Boden everyone can be creative once properly schooled in an area of expertise. She maintains a cognitive psychological point of view that creativity arises in regular mental processing. A creativity myth to one scientist might very well be a creativity standard for another. In the course of psychology's history, the definition of creativity has been hotly debated. *“[D]efining creativity may be one of the most difficult tasks facing the social sciences, because everybody wants to believe he's creative.”* Sawyer (2006, 11). How have psychologists been dealing with this task? Have they found the successful scientific norm that would interest Hacking?

³⁷ Creating something out of nothing is a philosophical conundrum indeed, ultimately leading people to declare that creativity is divine or metaphysical (Boden, 2004, 12).

4. Psychological creativity

Creativity has been rather self-evidently psychological. Psychologists never had to claim creativity as their subject. They have been involved in its investigation as a matter of cause. Why? A couple of reasons are suggested. Firstly, as a legacy of humanism and romanticism, creativity was attributed to the individual. This individual is the evident subject of psychology, particularly individual functioning, the intra-individual properties and individual differences. Secondly, creativity has been closely related to intelligence, another psychological variable par excellence. Both variables can be considered as 'naturally' psychological, as if they have been out there for a science of the individual to discover. However more elaborate historical explanations are available. As the individual arose in certain practices interested in the individual (in terms of both knowledge and power³⁸), intelligence arose within its practice, psychological study and application. Indeed, the 'individual' has not been around forever in our history, but has been discovered (some might say invented³⁹), and so have individual properties. How intelligence is understood, is intertwined with the history of psychology (Danziger, 1997). The same case could be made for creativity. Thirdly, scientific creativity was explicitly administered to psychology by an influential philosopher of science. Karl Popper⁴⁰ made the distinction between logical reasoning, a matter of philosophy of science, and irrational processes such as creativity, something psychologists are concerned with. Popper did not have high expectations of the psychological expedition into creativity.

Perhaps for this reason psychologists were hardly trusted in their attempts to explain the phenomenon (Faas, 1998, 13). This suspicion could, however, also have come from the inspirational and romantic creativity interpretations. These maintain that creativity is too mysterious, too spontaneous for science to analyze and determine. 'To create' has meant to make something appear out of nothing. Impossible if not for some divine forces involved (Boden, 2004, 12). Such a metaphysical matter could of course never be resolved by empirical psychology. And even as a human matter creativity is often considered, by definition, unpredictable. Imagination always seems a step ahead of its determination. However, regardless of some maintaining that "psychology is the natural enemy of creativity"⁴¹, referring to determination killing imagination, psychologists have optimistically embarked upon their journey to explain creativity.

A science of human innovation

Joy Paul Guilford, speaking as the president of the American Psychological Association in 1950, encouraged his fellow psychologists to pay more attention to creativity. He pointed out it had been neglected for too long, whereas it would be of great value both to science and society. In Europe genius was already being studied, for example by Géza Révész.⁴² He focused on extraordinary giftedness, investigating historically significant works and their creators. As a method he preferred phenomenological analysis, as he found qualitative and causal methods to be limited. However, it was an unusual subject to choose in the United States in the behaviorist heydays. Psychologists were

³⁸ Foucault, M. (1975). *Discipline and Punish: the Birth of the Prison*. New York: Random House.

³⁹ Danziger, K. (1990). *Constructing the subject: Historical origins of psychological research*. New York: Cambridge University Press. Rose, N. (1996). *Inventing Our Selves: Psychology, Power and Personhood*. New York: Cambridge University Press.

⁴⁰ In: Popper, K. (1959). *The logic of scientific discovery*. London: Hutchinson.

⁴¹ Komrij, G. (1995). *De buitenkant. Een abecedarium*. Amsterdam: Uitgeverij de Arbeiderspers. (p.139)

⁴² Révész, G. (1952). *Talent en genie, grondslagen van een psychologie der begaafdheid*. Leiden: E.J. Brill.

used to keep a lid on the black box between stimulus and response and were surprised by this sudden encouragement to dive right into human mystery (Sawyer, 2006).

Guilford is remembered as the father of modern creativity research.⁴³ His speech is mentioned as a first reason for the sudden increase in psychological literature on creativity from the fifties onwards. As a second reason is suggested the launch of the Sputnik in 1957; an international development making technological innovation and thus the investigation of creative potential, and how to recognize and foster it, more urgent (Van Strien, 1993; Faas, 1998). Whether it be the age of innovation, sparked scientific interest or the likely interaction between them, many psychologists started investigating, and the amount of creativity publications rapidly increased. Research blossomed with funds for discovering innovative talent becoming widely available. Thus forming a vast domain, “*a science of human innovation*” (Sawyer, 2006, 33).

Now looking back on the work that has been produced, a couple of things are remarkable. First, that many creativity researchers, probably under the influence of Popper and the logical positivists, have been looking for the logic or rationality of creativity and for its universal mechanism. According to Faas (1998, 14) it is not unlikely that this rationalizing of an irrational phenomenon has caused problems for the explanation of creativity. Second, that the instrumentality of creativity was recognized and it was associated with innovation. Guilford, the United States political agenda and socioeconomic circumstances, had laid the emphasis on scientific and technological creativity and its social and economical merits. Apart from originality and novelty, usefulness became a common creativity criterion. The interest in how to discover and promote this kind of creativity set the stage for the rise of creativity research. Third, that creativity turned out to be as ‘many splendored’ as Guilford had mentioned it to be, in terms of its definitions. Great amounts of literature, from many theoretical and methodological angles, resulted in many different definitions. In their definitional work researchers disagree on the nature or nurture of creativity. Is it an inborn talent or something we can learn? They disagree on the degree of madness involved. Is creativity dangerously deviant or is it very normally human? And they disagree as to what extent creativity is individual or social. That is, whether it can be explained looking at the individual alone or that its explanation involves social context. Those are the major three controversies (Simonton, 2005). But there’s more. A debate about creativity being context specific or context general. Is creativity a general ability, or is it ability with respect to a certain domain? A debate about creativity involving expertise or spontaneity. Do you need ten years of training or scholarship to come up with great ideas, or is it better to have a fresh new look on the problem? This is related to work on the creativity of children versus adult creativity. Some maintain children are more creative in their intuitive way of approaching the world. Others say this is a myth and that adults are better coming up with relevant, realistic or appropriate ideas that need significant specialization. And finally, there are debates about creativity being elite or everyman and being a cause or a consequence (Faas, 1998; Boden, 2004).

Controversies and oppositions abound. And to make matters worse, it turns out that 60% of the articles published in the *Creativity Research Journal* and the *Journal of Creative Behavior* and 67% of them in other journals actually don’t define creativity (Plucker & Beghetto, 2004). However, these articles were probably written within more general creativity approaches and research traditions.

⁴³ Sternberg, R. J., & Gigorenko, E. L. (2001). Guilford’s Structure of Intellect Model and Model of Creativity: Contributions and Limitations. *Creativity Research Journal*, 13, 309-316.

Psychologically approaching creativity

Creativity research has known a couple of influential approaches. Personality or differential psychology, humanistic psychology, cognitive psychology, sociocultural and neuroscientific approaches have all tried to capture creativity in their own way.

Guilford proposed a personality approach:

"[C]reativity refers to the abilities that are most characteristic of creative people. Creative abilities determine whether the individual has the power to exhibit creative behavior to a noteworthy degree. Whether or not the individual who has the requisite abilities will actually produce results of creative nature will depend upon his motivational and temperamental traits. To the psychologist, the problem is as broad as the qualities that contribute significantly to creative productivity. In other words, the psychologist's problem is that of creative personality." (1950, 444)

Creative personality was a unique pattern of traits belonging to creative people. Guilford criticized how creativity had been associated with intelligence. Intelligence had been made operational as arithmetic and reading achievements and these tests reveal "*very little that is of an obviously creative nature*" (447). The intelligence tests looking for the conventional answers did not account for original answers that would test creativity, and a high IQ would not guarantee creative achievement. Guilford did relate the two abilities as independent factors in his general Structure of Intellect model.⁴⁴ In this model intelligence involved *convergent* and creativity involved *divergent* thinking. Attempts were made to validate the model and measure and predict divergent production. Tests for divergent thinking, however, could not predict creative activity. That is, correlations between the tests and other ways to establish creativity were low. Psychometrically the personality approach was not a great success. No results were found to be consistent enough to assume a creativity quotient. People would be creative with respect to specific activities: a creative engineer is not automatically a creative cook. A general creative ability did not appear to exist; hence it was impossible to test. Although some personality theorists maintain the struggle for creative personality,⁴⁵ the approach was abandoned.

Research funds dried up towards the beginning of the seventies and the first wave of creativity research hit rock bottom. Another creativity conception had become popular that was not that susceptible to government and business funding as the once promising personality approach. From the point of view of humanist psychology, creativity was a potential present in every individual, rather than limited to a specific personality. Maslow⁴⁶ distinguished between two styles of creativity, primary and secondary. Primary was the creative activity that led to self-actualization. Secondary was the creativity leading to achievements recognized by a bigger community of experts or art-lovers. Creativity in humanist psychology was partly romantic, for self-actualization involved intuition, free expression and artistic activity. However creative self-actualization was natural for all individuals, not only for geniuses.

Some of Guilford's ideas did find their way into later waves of creativity research. Particularly in differential psychology creativity is an individual trait or rather various traits in various combinations (Sternberg, 2005; Simonton, 2005). Guilford had also moved away from a couple of romantic ideas

⁴⁴ Guilford, J. P. (1967). *The nature of human intelligence*. New York: McGraw-Hill.

⁴⁵ Eysenk, H. J. (1995). *Genius: The natural history of creativity*. Cambridge: Cambridge University Press.

⁴⁶ Maslow, A. (1967). The creative attitude. In: R. L. Mooney, T. A. Rasik (Eds.), *Explorations in Creativity*. New York: Harper & Row, pp. 43-57.

about creativity. It was not behold to the artistic elite, but could be technological and scientific, and moreover could be encouraged and developed. He influenced further research into the general mechanism of creativity, focusing on the creativity process.

Under the wings of the so-called cognitive revolution⁴⁷ what was left of romantic creativity was abandoned. Cognitive psychologists opened up the black box of behaviorism to look at the mental processes in between stimulus and response, processes present in all individuals. They showed renewed interest in creativity as the creative process taking place within the individual, rather than the creative individual himself. Creativity was taken to involve basic psychological processes such as problem solving, or rather “*creative activity appears simply to be a special class of problem-solving activity characterized by novelty, unconventionality, persistence, and difficulty in problem formulation*” (Newell, Shaw & Simon, 1962, 66). Being a proper child of its time this approach had strong connections with artificial intelligence. The possibilities to program something similar to human thought processes on a computer encouraged this new take on creativity.

[W]e would have a satisfactory theory of creative thought if we could design and build some mechanisms that could think creatively (exhibit behavior just like that of a human carrying on creative activity), and if we could state the general principles on which the mechanisms were built and operated. [...] If we are willing to regard all human complex problem solving as creative, then – as we shall point out – successful programs for problem-solving mechanisms that simulate human problem-solvers already exist, and a number of their general characteristics are known. If we reserve the term “creative” for activities like the discovery of the special theory of relativity or the composition of Beethoven’s Seventh Symphony, then no example of a creative mechanism exists at the present time. (1962, 64)

Margaret Boden approaches creativity as a cognitive process in a more contemporary way. She states that even though computers might not actually be creative, the artificial intelligence approach is helpful in explaining creativity. However “[t]he two major bottlenecks remain the same: the need for domain expertise in defining conceptual spaces, and the difficulty of identifying aesthetic values clearly enough for them to be expressed in computational terms.” (2004, 305). These bottlenecks for cognitive psychological explanation can be understood within the context of the different stages of the creativity process that this approach commonly distinguishes. They are *preparation*, analyzing the problem, *incubation*, putting it aside to let it simmer for a while, *illumination*, the aha-erlebnis or ‘eureka!’ and *verification*, elaboration and evaluation of the idea. These stages were first discerned by Wallas in 1926⁴⁸ and later incorporated by cognitive psychology.

With respect to preparation controversy exists on whether expertise is essential for creativity or not. One of the findings in creativity research is the need to be properly immersed in a particular field in order to come up with creative ideas regarding it. “*If one does not know the rules (not even tacitly), one can neither break nor bend them.*” (Boden, 2004, 269). On the other hand it is maintained that immersion in a particular domain can limit the capacity to see across its boundaries, to be flexible

⁴⁷ This was indeed a revolution for psychology in the United States, being predominantly behaviorist. However, not so much in Europe, where important work on cognition had already been done. Herbert Simon, an important contributor to this revolution, had been inspired by work on the thinking process of chess-players by Dutch psychologist De Groot. Upon reading this work in 1954, Simon became familiar with the ideas of Otto Selz, who had explained creative problem solving from normal thought processes. This has been of significant value for Newell and Simon’s work on heuristic programming, a milestone for cognitive psychology (Van Strien, 1993, 6-7)

⁴⁸ Wallas, G. (1926). The art of thought. In P.E. Vernon (Ed.) (1970), *Creativity*. Harmondsworth: Penguin books.

and original and thus creative. Research indicates an inverse U-pattern: first formal schooling contributes to creativity, but after the first half of graduate study more schooling decreases creativity.⁴⁹ It is hard to account for different degrees and domains of specificity in a general cognitive model.

As to incubation and illumination a couple of creativity theories have been influential. Arthur Koestler explained creativity as the unconscious combination of ideas from different domains. A process also called cross-fertilization (Koestler, 1964; Simonton, 1988). This is less likely to occur when people are over-specialized in a domain. Another influential theory is associationism, first coined by Alexander Bain in 1855.⁵⁰ It states that new ideas are combinations of the ones already present, not necessarily from different domains. A commonly held assumption is that an idea is never entirely novel, but a new combination of existing ideas or a reconceptualization (Boden, 2004). Incubation is seen as a subconscious process of outweighing ideas, or representations as Herbert Simon and his colleagues prefer to call them (1962). Ward, Smith and Finke (1999) have developed a line of research called creative cognition. For them incubation is a matter of basic cognitive processes like information retrieval, association and concept combination. Illumination is then a matter of seeing a new analogy or finding a new metaphor. Simon and colleagues (1962) describe it artificial intelligently as finding new heuristics.

The last stage, verification, involves conscious processing, namely determining whether the new idea is a good idea. One formula to have good ideas is to have many ideas (Simonton, 1988). Beyond that it has been difficult for cognitive research to explain this last stage. “[C]ognitive theories of creativity are not sufficient. Observable artifacts (i.e., products, behavior records) are also necessary for inferring, labeling and evaluating creativity.” (Plucker & Beghetto, 2004, 157). The practical success of a new idea is often a matter of current practices. Social context sets the standard for usefulness and novelty of an idea. Thus, says the critic, cognitive research cannot account for the entire phenomenon of creativity.

A related problem for dividing creativity into basic processes is how to put the puzzle pieces back together to explain creative activity (Sawyer, 2006). To reason from information representation via conceptual combination and analogy all the way to exceptional creative performance requires many theoretical steps. Away from the basic research outcome towards cultural conventions. That the different stages are not that easy to separate, they can occur randomly and repeatedly, poses another problem for clear cognitive explanation (Sawyer, 2006). And finally some researchers found that creativity is not merely problem solving, but problem finding as well, generating more heated debate about cognitive psychology’s account of creativity.⁵¹

It is particularly interesting to note that important work behind the cognitive revolution did take the cultural value of creativity as a point of departure. Otto Selz (1913; 1924)⁵² indicated that thinking is

⁴⁹ Simonton, D. K. (1984). *Genius, creativity, and leadership: Historiometric inquiries*. Cambridge, MA.: Harvard University Press.

⁵⁰ Bain, A. (1855). *The Senses and the Intellect*. London: John W. Parker and Son.

⁵¹ Simon, H. A. (1988). Creativity and motivation: A response to Csikszentmihalyi. *New Ideas in Psychology*, 6, 177-181; Csikszentmihalyi, M. (1988). Solving a problem is not finding a new one: A reply to Simon. *New Ideas in Psychology*, 6, 183-186.

⁵² Selz, O. (1913). *Über die Gesetze des geordneten Denkverlaufes. Eine experimentelle Untersuchung*. Stuttgart: Speemann; Selz, O. (1924). *Die Gesetze der produktiven und reproduktiven Geistestätigkeit*, Bonn: Cohen.

not random but directed by an *Aufgabe* and *schematic anticipation* of a perceived goal. His critique on associationism was historically significant for explaining creativity in terms of problem solving and normal thought, and a great source of inspiration for Simon's work on heuristics and subsequent cognitive psychological breakthrough. Selz, contrary to the early cognitivists, maintained the cultural value of creative work. Not in a romantic vein of brilliance and spontaneous inspiration, but because it involved hard work, a real *Aufgabe* (Van Strien, 1993, 6-7).

Criticizing cognitive psychology for its narrow approach, the sociocultural view proposes a more encompassing explanation of creativity. Prominent socioculturalist Mihaly Csikszentmihalyi argues that the newness and usefulness of a creative product is a cultural matter. Determining who is creative is then dependent upon cultural standards. Csikszentmihalyi connects creativity to the experience of 'flow'.⁵³ In his conception ideas from humanist psychology resonate. But apart from personal value, creativity has cultural value. The sociocultural approach stresses that beyond psychology, the wider scope of history, sociology and anthropology is needed for a full explanation of creativity.

Narrowing down the focus, with technological development offering new methods of investigation, neuroscience also tries to explain creativity. Brain research has indicated creativity to be quite an intricate matter. Most investigators agree that it cannot be localized in a particular brain region. Dependent on what type of creative activity is performed, different regions are active. This also depends on previous training in a domain. Creativity is not, as often popularly believed, just a right hemisphere function. Both hemispheres contribute, be it in slightly different ways. Some hypothesize creativity is actually the enriched communication between the two hemispheres.⁵⁴ However, there are many disputes. On the one hand our genetic predetermination is emphasized, on the other hand it's argued that the brain has great plasticity and is continuously formed by activity and input.⁵⁵ Note that again creativity is found to depend on the environment. An argument follows, similar to the criticism on cognitive psychological accounts.

From the brain-processes themselves it is hard to tell what creativity is. As Gardner⁵⁶ said "*You could know every bit of neurocircuitry in somebody's head, and you would still not know whether or not that person was creative.*" What is found in the brain depends on what is defined as creative, reflected in the task the research subjects are given. If this is merely solving anagrams that have one answer⁵⁷ probably very different results are found then when a poet's brain activity is measured while he is writing a poem. Because definitions widely differ, neuroscientific research settings and consequently the results differ even wider.

⁵³ Csikszentmihalyi, M. (1996). *Creativity : Flow and the Psychology of Discovery and Invention*. New York: Harper Perennial. His work is an important contribution to positive psychology. This approach, set in motion by Martin Seligman's APA presidential speech in 1998, stands in the tradition of humanist psychology. It rejects the emphasis on mental illness and focuses instead on happiness, talent and fulfillment. Seligman, Martin E.P. (2002). *Authentic Happiness: Using the New Positive Psychology to Realize Your Potential for Lasting Fulfillment*. New York: Simon and Schuster.

⁵⁴ Hoppe, K. D. (1988). Hemispheric specialization and creativity. In K. Hoppe (Ed.), *Hemispheric specialization*. Philadelphia, PA: WB Saunders, pp. 303-315.

⁵⁵ Sitskoorn, M. (2006). *Het maakbare brein*. Amsterdam: Bert Bakker.

⁵⁶ Gardner, H. (2001). Creators: multiple intelligences. In K. H. Pfenninger and V. R. Shubik (Eds.), *The origins of creativity*. New York: Oxford University Press, p. 130.

⁵⁷ NRC Handelsblad, 31-01-2008, *Creativiteit in het brein vooraf zichtbaar*.

http://www.nrc.nl/wetenschap/article1881060.ece/Creativiteit_in_brein_vooraf_zichtbaar

Contemporary researchers have been affirming the complexity or multiplicity of creativity. Sternberg (2005) suggests that creativity is not a singular attribute, but that there are multiple attributes: many creativities. Gardner⁵⁸ proposed that different intelligences contribute to creativity. Linguistic intelligence contributes to the creation of literary successes. Bodily-kinesthetic intelligence is involved in great choreography. Multi-component models of creativity, affirming that creativity is both domain specific and domain general, have been suggested. Social psychologist Teresa Amabile also recognizes the need for both openness and expertise.⁵⁹ Cognitivists Ward, Smith and Finke (1999) suspect that researchers do not actually disagree on the true underpinnings of creativity, but emphasize different creativity 'styles'. It is suggested that the field is moving towards more agreement, yet it is hard to oversee. Actually, with scientifically acknowledging that creativity is complex and the kind of definitions this generates: "*Creativity is the interplay between ability and process by which an individual or group produces an outcome or product that is both novel and useful as defined within some social context.*" (Plucker & Beghetto, 2004, 156), we are back where we started. Many models of creativity either are too complex, explaining away creativity, or too general, explaining nothing at all (Faas, 1998), leaving us again with the statement that creativity is a many splendored thing. It seems the more research, the more creativities, the more difficult to represent them all in one multi-model. From a singular person to a multiple model, creativity has been defined depending on how it has been approached, accommodated to each research tradition.

Creativity definitions

Now the chaos has been recognized and some organization of the different definitions of creativity has been suggested. Many agree that creativity divides into three *p*'s: *product*, *person* and *process*. The creative product is often defined as something both novel and useful. The creative person is the one making the product. The creative process is the process that has a creative product as outcome (Simonton, 2005). In addition, *environment* is often mentioned (Dudink, 2008). The environment makes the creative process and thus the creative product possible. The creative process can be individual, a group process and even a social process. Often the focus is on a particular aspect, narrowing down the definition to suit the approach that uses it. Cognitive and neuroscientific research focuses on the process. Personality and differential psychology emphasize the person. Socioculturalists aim at the product and its environment. However, the three *p*'s and *e* are related. In brain research the present environment and the cumulative past experience of the person, that is brain stimulation and pathways already established by earlier stimulation, are important determinants of the process. In humanist psychology the creative self-fulfillment is an important process for the person. Plucker and Beghetto (2004) suggest that personal ability and process interact in the formation of the product. Whether this is creative determines the social context, in other words the environment.

As to novelty of the creative product another definitional distinction is made. An idea can either be entirely novel, nobody has ever come up with it before. Then it is historical creativity. Or it can be new to the person who has the idea. Then it is psychological creativity (Boden, 2004). Another similar distinction is made between big 'C' and little 'c' creativity. Big 'C' creativity is culturally and historically significant, the work of genius or the solving of very difficult problems. Little 'c' creativity is what everybody uses on a daily basis, the solutions we find for our problems and breakthroughs on

⁵⁸ Gardner, H. (1993). *Multiple intelligences: The theory in practice*. New York: Basic Books.

⁵⁹ Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview.

a personal level. This distinction has been acknowledged by many researchers (Van Strien, 1993; Faas, 1998; Plucker & Beghetto, 2004; Sawyer, 2006). It is similar to Maslow's aforementioned contrast between primary and secondary creativity. The separation is rather gradual. Often personal creativity can turn in to something big, but it has to be culturally valued accordingly.

Note that in creativity accounts a cultural norm about creativity is often implicitly or explicitly present. Either because the creativity of famous artists is investigated, or creativity is approached as something ultimately culturally defined. Determining an idea as novel or useful has been recognized to be a matter of social context (Plucker & Beghetto, 2004). Some maintain that this is the reason why it's been so hard to psychologically explain creativity. "[Creativity] – as we use the term in everyday language – is not a scientific concept; it's a culturally and historically specific idea that changes from one country to another, and from one century to another." (Sawyer, 2006, 36). Creativity is not merely individual, acknowledges Faas (1998). Whole collective processes, research traditions, socioeconomic circumstances and technological development are necessary preconditions for creativity. The focus on the individual leaves out these additional factors and therefore not fully explains creativity. Now these researchers typically explore big 'C' creativity. Often they write historical/psychological accounts of people with great ideas. Creative personality and sociocultural research fall into this category. The little 'c' research is usually connected with the cognitive research tradition and has also been called psychological creativity (Van Strien, 1993). Here creativity is considered far more basic, independent of broad social recognition of the creative product. As it is the moment of illumination and the preceding process that interests these psychologists.

Both creativities are in line with each other, and are actually hard to tell apart. Humanist psychology combines elements of little 'c' and big 'C' creativity, making intuitive artistic expression available for everyone. Otto Selz recognizes that normal thought processes have culturally significant objectives. Some contemporary creativity researchers suggest a similar combination. Creativity is individual in both the big 'C' personality approach and the little 'c' process approach. The product is an outcome of the process, and both involve the person. Yet the distinction can be useful in investigating the effect or practical implications of scientific creativity.

Different definitions, depending on which point of view is taken, have different implications. Definitional issues thus present a problem for a looping effect of creativity. A multiplicity of scientific norms suggests multiple looping effects, if they are successful. That a very specific norm succeeds in a very specific domain is but a very small success. Even though Hacking describes particular practical effects, they have significant influence. Striking a balance between too general creativity and too specific creativity, big 'C' and little 'c' creativity are considered. They bring different implications, because they set different norms. The question whether there is a looping effect of creativity divides into *is there a general looping effect of creativity? And is there a looping effect of two generally different creativity conceptions?*

5. Creative looping

For creativity to describe a looping effect some requirements have to be met. It has to be clearly classified. It should refer to people, distinguish them and set a norm. The category of creative people or creative behavior should imply a definition, an explanation and an intervention. It is the normative character of classification that makes people concerned with their classification, setting the looping effect in motion, and ultimately changing the classification. Being called creative should make people react, and consequently change how 'to be creative' is understood.

Giftedness, a kind related to creativity, is very likely to loop. Highly talented or gifted children form a particular category. Often they are classified by way of intelligence tests, with results showing extremely high achievement compared to the mean of the population. Or they are perceived by teachers and parents to differ from other children in a precocious way. As soon as children are perceived to be gifted, many parents start demanding or teachers start recommending a special treatment. School environments are adapted to what these children need in order to fully develop their potential. A highly gifted child is a classification of a person, involving definition (for example an extremely high IQ) and intervention (for example gifted education). Because of the value attributed to the classification, especially by parents, a series of environmental changes is set in motion. The web support and magazines particularly focused on this classification, the special educational methods, the exposure to the adult world at an earlier age being admitted to university very early on, all might very well change these children. A scientific norm has taken hold of their lives. That they change as a consequence, changes the category they've become a part of, thus shifting the scientific norm. Becoming a genius mathematician or engineer at MIT might reinforce the idea that giftedness is behold to 'hard' science and emphasize the logical, spacial and mathematical components of intelligence tests. This could change the criteria for new gifted children to be admitted to the class. Of course a child categorized as gifted could also become a brilliantly deranged artist, thus perhaps opening up the field of giftedness for other talents. The category could become associated with abnormality and mental disorder, when the child gives away under the pressure or when the talent is so specific that it is considered a sign of autism. The pressure exercised by parents, criticizing the narrow focus of intelligence tests and claiming a gifted status for their child, could also change the classification criteria. Thereby increasing the amount and variety of gifted kinds. Even though giftedness has not yet been counted among the interactive kinds, further research will likely change that.

Nevertheless, there are some indications that creativity is an unlikely candidate for Hacking's collection. It is not as straightforwardly determined as giftedness. There are too many scientific definitions and none of them is accepted as the norm. There is no test for creativity as there is for giftedness. Many scientists accept that creativity is domain specific and conclude that there are many ways to be creative. In so doing they have allowed many definitions to coexist. On the other hand such all-encompassing definitions are given, trying to account for many different manifestations of creativity that they hardly distinguish. There are either various standards determining whether somebody is creative or there is a continuum on which different creativities can be placed. Public effects of plural definitions are likely to be even more plural. No one implication can be drawn from the conclusion that creativity is complex, multiply realizable and domain specific. Rather it seems to allow an 'anything goes' creativity conception, not specifying any definition, not emphasizing any explanation, not suggesting any intervention. Nothing in particular, hence no classification?

The conclusion that there is no looping effect of creativity at all cannot be drawn just yet. Two kinds of psychological creativity have been suggested that have somewhat more specific implications. Let us therefore consider two looping effects.

Eminent looping

Creativity with a big 'C' is similar to how creativity has been conceived romantically. Related to talent, genius, artistry and giftedness, it is a characteristic of the individual who has created historically and culturally significant work. Because *Creativity* describes a person, categorizing him or her among the select few representing the summit of achievement throughout the centuries, it is an obvious human kind. More specifically a second order kind. *Creativity* is, just as normalcy, a property of a human being. The creative individual would therefore be the human kind. It is a human kind greatly determined by history and culture. With a focus on individual achievement, it is a thoroughly Western conception. Taking Mozart, Einstein and Picasso as the prototypical creative geniuses, is measuring creativity along cultural criteria. The stories of their *Creativity* are histories rewritten in terms of our present standards. They are famed for their originality in innovative terms. *Creativity* as we now know it is historically determined. It depends upon the relatively new focus on the individual and even newer emphasis on innovation. *Creativity* would fit neatly into Danziger's historical account of psychological categories. Now, is *Creativity* also an interactive kind?

Being described as *Creative* in the historically significant sense, and still being alive to hear it, will likely affect an individual. It is a very normative act indeed, attributing great value to this person's work or expressing great admiration. A Nobel Prize, an exposition in the finest museums, a best-seller or a blockbuster will generally not leave the creator indifferent. It can be a source of joy, pressure for having to repeat the success, frustration because of the loss of privacy, arrogance, isolation or even madness. This might affect the class of creative individuals, reinforcing beliefs that creators are mad, arrogant and isolated. Self-fulfilling prophecies are likely to occur. Some researchers have pointed out that an important feature of creative individuals is that they believe in their own creativity. According to Sternberg commitment to be creative is something all creators have in common.⁶⁰ Runco (2004) indicates that 'ego-strength' is related to creativity. We need self confidence to express non conforming ideas. He suggests that reinforcing ego-strength can partly contribute to the enhancement of personal creativity. Sternberg states that the commitment to creativity can be encouraged. Thus strong belief in themselves and their creativity makes artists more exemplary of their category.

The self help shelf suggests that artists have to deal with quite some existential crises. Book upon book is offered with self-affirmations for creative individuals. *I have a right to be creative!* and other mantras that pride on the out of the ordinary, might reinforce isolation and uniqueness of creative individuals. This could very well influence their success. Beyond doubt the value inherent to *Creativity* will affect creative individuals, making *Creativity* more individual and so on. However, their classification is *cultural* one. Science is not dictating who is *Creative*, it is evaluating the ready-made examples of creative individuals. A sample of Western culture and history in general. This cultural classification probably has an effect on the classified, but not a looping effect as it is understood by Hacking. Scientific classification merely underlines cultural and historical selection.

⁶⁰ Sternberg, R. J. (2002). Creativity as a decision. *American Psychologist*, 57, 376.

Sternberg, R. J. (2002). Encouraging students to decide for creativity. *Research in the Schools*, 9, 61-70.

To really determine a looping effect of *Creativity* is to establish that a *scientific* norm influences the classified, thus influencing the classification. So does *Creativity* as it is understood by psychologists have practical implications? The lack of successful tests suggests it does not. At least no scientific norm has been set and applied to practice by way of a test. Have there been clear research implications?

Implicating Creativity

Creativity research did have a practical agenda in the sixties. The Guilford program set an educational agenda with the idea that the 'primary mental abilities' involved in acts of creativity can be encouraged and fostered. Creativity was still an extraordinary talent, be it on all innovative domains – preferably technology – that needed to be discovered in a child sooner rather than later. By the time the cold war was over the various attempts to measure and predict creativity had failed. On top of that *"the rationale for financing creativity studies changed from addressing Cold War fears to fostering individual expressiveness and eccentricity [...] it should come as little surprise that financial support essentially disappeared."* (Feldman & Benjamin, 2009, 327). The educational agenda that propagated ideas from humanist psychology was also being pursued. Eventually, the psychometric approach of creativity had very little educational impact. To some extent it is applied in talent and gifted education, where ideas about creativity as free expression already are quite common, as an addition to the more successful intelligence measures. Yet as we have seen, creative activity in the classroom has been usually perceived as nothing more than educative play, and is not directed at any fostering. Feldman and Benjamin observe that the new wave of creativity research focuses on extraordinary achievements. Those are believed to depend on personal, domain specific and often congenital talent. As such the research is less likely to produce educational implementations. Will the finding that *"[c]reativity can be of different kinds and it is important that teachers reward all kinds of creativity"* (Sternberg, 2003, 325) make a big practical difference?

Recently particular ideas about creativity did occur in educational policy, suggesting practical implications. With the political emphasis on talent development all over Europe, creativity is encountered as a talent that everybody has with respect to some domain, that needs to be recognized early on and that therefore children need to be exposed to various practical contexts. (Sligte, Bulterman-Bos & Huizinga, 2009). Some education innovators take creativity to be a more general "core quality", something that becomes a talent if this quality is abundantly present (Korthagen & Lagerwerf, 2008). In defining creativity as a core quality, it is distinguished from competences. The latter refer to more technical or craft like abilities. Contrary to competences, core qualities are holistic concepts that cannot be technically subdivided. They are innate whereas competences can be learned, and they broadly apply whereas competences are domain specific. As this general and innate property, creativity can merely be discovered in children and not actively fostered. In their plea for talent development in education, Korthagen and Lagerwerf draw from positive psychology. They refer to Seligman's work on qualities and Csikszentmihalyi's work on flow. Flow is described as the process of applying and thus reinforcing the core qualities. To further develop talent, teachers are encouraged to "coach from core reflection". In other words, to recognize qualities in students and try to elicit and stimulate them, in order to make them flow (Korthagen & Lagerwerf, 2008).

Do these ideas about talent development find their application? Only on a scale that disappoints innovators:

“Many educators and creativity researchers have invested greatly in systematic efforts to promote creativity in schools.⁶¹ Unfortunately many of these efforts are compartmentalized into privileged or constrained spaces such as gifted education programs or intermittent afterschool programs. [...] Such programs take a backseat to mainstream curricula” (Beghetto & Plucker, 2006, 318).

Now Dutch education has been significantly reformed in the last decade. Has there been any bigger creativity effect? There was no mention of ‘creativity’ in these reforms, yet the central concepts – problem-based learning, environment-based learning and metacognition – have been positively related to creativity. The diverse and stimulating environment proposed by the environment-based learning approach, has been found to be creativity enhancing (e.g. Dudink, 2008). Metacognition, or reflection on learning by the learner, is supposed to make learning more meaningful and increase motivation; motivation is indicated as fundamental for creative performance, so metacognition might enhance creative performance (Runco, 2004). Problem based learning and creative thinking skills have been positively related. Domain specific creativity and problem based learning have something in common. The success of creativity as domain specific is explained by the general pendulum swing in the social sciences towards situated cognition.⁶² So called ‘new learning’ also presumes this paradigm.

It would seem that scientific ideas have found their way into practice. However, these educational practices are not directly implied by creativity research or theories about creativity, nor do scientists agree that educational innovation is scientifically based. The scientific basis of the shift towards so-called ‘new learning’ is even heavily debated. Van der Werf (2005) argues that the choices for problem based learning, environment based learning and metacognition were made on ideological grounds. Indeed, most research merely evaluates certain politically determined educational practices, instead of independently determining how we best learn. Other research does not clearly map out implications and many different implications can be drawn from the same research outcome.

Actually, problem based and environment based learning are implications suggested from different points of view on creativity. Domain specificity implies a particular context to be beneficial. Some maintain that even though creativity might look domain specific, it actually is domain general.⁶³ Enhancement can be attained by exposing students to “a wide range of contexts in which they can apply their creativity in a search for an optimal interaction of ability and context” (Plucker & Beghetto, 2004, 162). Thus, theoretical differences turn out to not make any difference on a practical level.

In brief, although creativity research seems relevant for education, practical changes have not been made based upon investigation. In the first place because creativity has not been conceived in a way that draws clear implications or advocates active fostering. Secondly, because practices are marginally and randomly related to research and theory. There are merely myriad and politically interested paths relating them. When it comes to creativity, researchers are critical about the amount of influence they have on educational innovation and educational innovators are critical

⁶¹ e.g. Renzulli, J. S. (1994). *Schools for talent development: A practical plan for total school improvement*. Mansfield Center, CT: Creative Learning Press.

⁶² Barab, S. A., & Plucker, J. (2002). Smart people or smart contexts? Talent development in an age of situated approaches to learning and thinking. *Educational Psychologist*, 37, 165-182.

⁶³ The criteria for creativity, novelty and usefulness, are general, but what is novel and useful varies across domains. Creativity is hindered by either too much specificity (fixedness) or too much generality (superficiality) and requires a flexible position in the middle. (Plucker & Beghetto, 2004).

about the amount of influence they have on educational practice. To state that this divide is a consequence of the definitional problems concerning creativity, would be incomplete. Education was institutionalized with a focus on conventional intelligence and proper socialization. This allows little space for nurturing deviance and originality. This also limits the effect of creativity research on institutionalized education.

Now, giftedness did make an impression on education. Related to intelligence, it is easier to determine and better fitted to the commonly set educational aims. The recognition of this human kind has led to parent lobbying and special education measures. Probably a looping effect was set in motion, but detailed investigation is beyond the scope of this paper. Particularly the context in which this kind developed needs to be unraveled. For it is yet hard to tell whether it was a scientific norm that set the gifted-loop in motion, or it was a colored interpretation of scientific findings that initiated the merry-go-round.

The case for a looping effect of a scientific classification of *Creativity* is not very strong. In education no change has been observed as a result of a scientific norm. With scientific ideas that creativity is already present in a child, or will automatically develop, or that it is too complicated to justify any kind of action, little can be done. That with these scientific conceptions current practices are maintained could be interpreted as a kind of looping effect: creativity is domain specific, so we just continue specializing for it to appear. Yet, when the scientific classification does not need to be adjusted to a changing kind, the metaphor of looping seems too dynamic. Furthermore, the scientific norm cannot clearly be isolated. Not from the complex web of scientific definitions, nor from the rest of cultural practices and particular political agendas. Rather than a looping effect following on scientific classification, this appears to be a cultural status quo. With respect to *Creativity* Danziger's account seems more appropriate than Hacking's. Culture sets the stage for *Creativity*, science merely plays the field. *Creativity* is then a human kind, because it arose in our culture, and not because science has successfully classified it. Rather, the science of big 'C' creativity has supported a conservative cultural norm. As psychology tends to do according to Danziger (1999, 81).

Everyday looping

Will little 'c' creativity be more successful? That depends on its degree of human kindness and on a scientific norm coming from cognitive psychology. As *creative* behavior, little 'c' creativity is a second-order human kind. This behavior can in its full psychological scope also be a mental process. As such it is human, but is it really a category? Behavior can be more or less creative. However, the cognitive psychologist does not tend to distinguish. He is interested in basic cognitive processing. Cognitive research is also conducted inquiring talents and geniuses, but rather it tends to study how people originally solve problems. The focus is on a general mechanism shared by all individuals, instead of the individual person. Often it is suggested that the process for a highly creative individual is the same yet more valuable, original or innovative products emerge. The value judgment of the creative product is then placed outside of the cognitive psychologists' realm, in society. Thus, the little 'c' cognitive process of creative behavior itself does not classify people. There is not a scientific standard that evokes people to react. Rather than distinguishing people on valuable traits cognitive psychology acknowledges that the fundamentals for creative productivity are present in all human beings. Feeling personally addressed by such a description of creative behavior is unlikely. Only a genius could feel indignant about it, particularly when the public does not recognize his extraordinary talent either.

If the *process* were to be classified as creative rather than the individual, his behavior or his product, a looping effect becomes more likely. Yet the looping effect for the *process* is different from the loop that follows upon classifying a *person*. The process is unable to consciously self-reflect; it does not operate under or depends on a certain description. To the process it does not matter to be called creative or not. A person can become aware of the description of his processing. However, if he would be interested in changing this, he would not be able to change the process itself. What he could do is change his environment. The environment sets the conditions for the process to occur. Changing conditions would change the process, like in a looping effect of an unconscious or natural kind. Brain processes are natural kinds that develop with the world. Indeed, the brain is organic and in continuous interaction. The fundamental cognitive processes might be better represented as computational kinds though. They are more abstract than the brain's flexible kinds. Computational models are supposed to be universal, logical, formal. Such rigidity is hard to relate to the constantly changing environment.

Now, the notion of situated cognition suggests an interaction between process and environment. To account for this interaction cognitive models would have to have the brain's plasticity. The variation in creativity of the process then depends on variation in environmental stimuli. The outcome of the process would change the environment and a changing environment would influence the process. Thus, when involving the environment in cognitive explanation models, a looping of creativity is quite likely. The degree of creativity would simply depend on the input at the very moment of the process, and the input gathered and processed earlier on; the history of experiences that has formed how we process information. Interventions for creativity improvement can be easily situated in the environment. This suggestion has already been made by creativity researchers and experts working in the field (e.g. in education. Dudink, 2008). The recognition of environment dependent and experience dependent processing would require to some extent the abandonment of a general cognitive model. The model would have to adapt to continuously varying circumstances. The artificial intelligently minded not willing to make this sacrifice are left with kinds that are neither human nor natural. An effect of computational classification on computational kinds would probably be as loopy as a logical or mathematical proof, and such a perfectly modeled tautology is not that practical. Boden (2004) suggests that from computational combination new combinations can emerge, and that this model can explain how new ideas arise. However, clear practical implications from such a computational model of cognitive processing are notoriously hard to draw.

Indeed, it is the difference between abstract investigation and concrete practice posing a problem for little 'c' looping. Many different implications can be drawn from fundamental research, just as one practice can be backed-up by different research outcomes. Opposing educational ideologies say to be grounded in cognitive psychology, but according to cognitive psychologists this is rather far-fetched. "*Cognitive psychology can be a knowledge foundation for a whole spectrum of education practices*"⁶⁴ Firmly basing educational practice in fundamental science is hardly possibly. No one implication is simply given. Lots of intermediate interpretations are made and values and interests enter the picture (Van der Werf, 2005). For fundamental researchers educational practice is too ideological. For educators research lacks ecological validity. Such myriad paths unwind that looping is confused and unlikely to be successful.

⁶⁴ Elshout, J. J. (2000). Constructivisme (?) en cognitieve psychologie. *Pedagogische studiën*, 77, 134-138, p. 137.

Another reason for this mismatch has already been given, by the critics of cognitive creativity but also by Boden (2004). No scientific norm is given apart from how the process is modeled to proceed. According to Boden, the ultimate judge of creativity is not the cognitive description of the process, but the cultural description of the final product in terms of its newness and usefulness. And as history and society enter the explanation, creativity does not merely loop under a scientific norm from cognitive psychology.

Theoretical normativity

Even though cognitive psychology's research outcomes do not explicitly set a norm, normativity is found in the historical preconditions and theoretical framework. Danziger acknowledged that a historical account of cognition had yet to be written (1997, 193). The theoretical framework, however, shares assumptions with that of behaviorism and learning theory.⁶⁵ Danziger historically analyzes the categories of behavior and learning concluding that they "*undoubtedly represented the purest expression of twentieth century modernism within the entire domain of psychology. There is considerable irony in the fact that the categories which most stridently proclaimed Psychology's abstract universalism were precisely the ones which were most parochial in a cultural and historical sense.*" (1997, 108). The understanding of 'behavior' was formed between social context and scientific communication, and became intertwined with behaviorism. It played a significant part in establishing the cohesion that the dispersed field of psychology was looking for at the time. Autonomy and authority was found as 'the science of behavior', the science of a newly found general category that assured a wide application. 'Cognition' shares its history with 'behavior', but made sure that psychology also has a say about what happens inside the black box, between stimulus and response.

That the understanding of 'cognition' developed in the interplay between social context and scientific community, is quite likely. Be it professional rivalry within the community, the ideologies that psychologists more or less consciously bring into play or the bigger cultural context that sets the stage, a political drama unfolds that determines formulation and policy. The formation of a field dedicated to cognition is likely to be intertwined with the politics of cognition.

"Adopting a particular classification of psychological phenomena, and implicitly rejecting a myriad possible alternative classifications, means establishing a certain form for the recognition of human conduct and human individuality." (1997, 185). "The meaning of these categories always depended on the use to which they were put in specific social contexts [...] such communication was never entirely disinterested, uninvolved or innocent." (1997, 184).

Psychological language is not politically innocent but used to justify and legitimize certain practices. Using terms from contemporary cultural discourse, it establishes a theoretical framework with a certain taken for grantedness, but with implicit value.

What might this implicit value shared by behaviorist and cognitive accounts be? Functionality for example. Behaviorists had suggested a mechanical causal model of human behavior. In order to causally approach the black box hidden away from behavioral observation, the functions-vocabulary was elaborated. Cognitive processing is the functional relation that was assumed between stimulus and response. This language is not value-free: functionality is very similar to usefulness and is

⁶⁵ For example Jerome Bruner (1990) indicates that cognitive psychology theoretically is an expansion of the stimulus-response model. In *Acts of meaning*. London: Harvard University Press. More specifically, the cognitive psychology initiated by the cognitive revolution in the U.S. elaborated on the stimulus-response model.

determined with respect to a certain norm or to certain practices. 'Progress', 'health', 'normality', 'development' are thoroughly value-laden objectives, in terms of which functioning is described. Isolating functional relations, as some cognitivists attempt to do, will not make them less functional or relational. As soon as they are related to the environment, their purpose will become clear or will be made clear according to some value-system. The recognition of human behavior or the individual as functional, perfectly matches an ideology valuing work and productivity. Within post-industrialist Western society functionalism can smoothly be taken for granted.

In the historical practice of rejecting behaviorism, the cognitive approach was inspired by some other particularly contemporary values:

"This transition in the scientific account of human nature involved making normal what had once been normative: borrowing ideas of democratic thinking from political culture and conceptions of good thinking from philosophy of science to describe humans as active, creatively thinking beings, rather than as organisms that simply respond to environmental conditions." (Cohen-Cole, 2005, 107) ⁶⁶

Danziger and others reveal the value-laden practices from which psychological categories arise and the implicit value present in theoretical frameworks. Cognition, basic information processing, is as historical and political as its predecessors learning and behavior. Large part of the discourse would not have existed without the historical and political events, the industrial revolution, the world wars, leading up to the invention of the computer. Outside of a culture valuing individuality and instrumentality the framework would make no sense. It seems that creative problem solving is value laden after all, as determining 'problems' and 'solutions' already suggested.

Looping between creativities

Now, the theoretical framework of cognitive psychology has important features in common with creativity practices. The idea that creativity is present in everybody, that it is innovative and useful might have been fed by how it was conceptualized in cognitive accounts. Everyday creativity is becoming more popular on a public scale, or at least is more encouraged. Not only commercially with the creativity techniques, books and training that nowadays dominate the creativity discourse on the internet. Also it has been suggested that there have been "*shifts in scholarly attention away from first generation and towards second generation understandings of creativity.*" (McWilliam & Dawson, 2008, 633). That is, a scientific move from big 'C' to little 'c' creativity unhooking creativity from innate genius, that allows for more active fostering of creativity in education. On the EU educational agenda this creativity optimism resonates. The political encouragement all over Europe has established creativity as a widely available yet unexploited valuable commodity. Creativity has become a 'dirty word' according to some ⁶⁷, a 'hurray word' according to others (Gibson, 2005). So what about an effect of the cognitive psychological creativity conceptualization via creativity techniques and the discourse of innovation on people becoming or believing to be more creative? To what extent has this been a looping effect?

Some concrete tasks and practices are shared between science and marketing. The popular marketing term "out of the box thinking" has been derived from a riddle, the nine dot problem. This

⁶⁶ Cohen-Cole, J. (2005). The reflexivity of cognitive science: the scientist as model of human nature. *History of the Human Sciences*, 18, 107-139.

⁶⁷ Troost, A. (09-03-2010). *Waarom creativiteit een vies woord is*. In: hard//hoofd dagelijks online tijdschrift voor kunst en journalistiek. <http://www.hardhoofd.com/2010/03/09/waarom-creativiteit-een-vies-woord-is>

problem was investigated by psychologists interested in the general processes underlying creativity, or rather problem solving.⁶⁸ As such it was taken to be an approach to creativity, understood as a problem solving ability. The nine dots were involved in scientific creativity and have been adopted by contemporary popular creativity testing on the internet. More generally the testing-craze seems inspired by the enthusiastic testing in psychology. This particularly happened in the age of psychotechniques in the first half of the twentieth century. Here psychological research, by way of testing practices, was explicitly applied to work and human productivity (Dehue, 1995). Present day organizational psychology and contemporary business management have this history in common. Together they actually constitute 'human resources'. Psychology and business share an interest in many human capacities, including creativity. Certainly, the phrase 'science of human innovation' already suggested that.

Among the creativity 'gurus' scaffolding the present creativity market are the scientific cast asides. For example Dr. Edward de Bono, the controversial inventor of 'lateral thinking'. With this simple step aside from the regular thought pattern, he has had great commercial success. Many people come up with creative ideas because of his 'six thinking hats' strategy, approaching a problem from different angles. His status has been scientifically backed-up by a psychology degree, yet it is probably the only scientific recognition he has gotten. Scientists distrust his trade marking and self branding. Yet as many scientists he relates creativity to problem solving. A very successful creativity concept, related to problem solving, has been 'divergent thinking'. Guilford's definition of creativity is widely accepted in marketing. Given the innovative value Guilford awarded to creativity, this could hardly be avoided. In general creativity techniques aim at the improvement of divergent thinking. Indeed, De Bono must have plagiarized from somewhere to upset the scientific community. Other gurus are nevertheless quite respected in the scientific field.

Teresa Amabile's creativity theory⁶⁹, stating that cognitive abilities, personality characteristics, and social factors contribute to the creative process, is a reference for scientists and trainers alike. Her model takes expertise, creative thinking skills and motivation to be the components of creativity. Apart from studying the creative individual, Amabile extended her research to individual productivity, team creativity, and organizational innovation. Her work became particularly popular because of its focus on the social psychology of creativity that had been largely neglected before. Among other work it initiated a wave of recognition for both cognitive and social factors at work in creativity processes. The environment was recognized as a factor that can limit or improve creativity, and implications were drawn for creativity in groups, at school and at work. Amabile now is the head of the Harvard Business School Entrepreneurial Management Unit, the only full-time creativity researcher in such a position. She is recognized as an eminent explorer of business innovation.⁷⁰ This indicates that her ideas about creativity are successful and relevant far beyond science, and that the line between scientist and management guru might be hard to draw.

⁶⁸ Weisberg, R. W. & Alba, J. W. (1981). An examination of the alleged role of "fixation" in the solution of several "insight" problems. *Journal of Experimental Psychology: General*, 110, 169-192.

⁶⁹ Amabile, T. M. (1983). The Social Psychology of Creativity: A Componential Conceptualization. *Journal of Personality and Social Psychology*, 45, 357-376.

⁷⁰ 01-12-2004, *The 6 myths of creativity*. B. Breen in Fast Company Magazine, issue 89: www.fastcompany.com/magazine/89/creativity.html

Arthur Koestler's *Act of Creation* (1964) has greatly influenced both cognitivist approaches and creativity technicians. He describes a process of relating previously unrelated ideas and thus generating a new idea. Margaret Boden (2004) takes this 'bisociation' theory of creativity as a central part of her cognitive creativity account. Koestler has inspired the teaching of creative thinking. Boden also suggested that more active fostering of creativity is possible than merely the discovery of talent. That learning is possible and that processes such as those for creativity can be improved is basically accepted throughout cognitive psychology. Cognitive psychologists and creativity trainers have the beliefs in common that creativity is everyman's and that it can be learned or improved.

Admittedly, many creativity techniques don't take scientific research literally and most scientists do not take the techniques seriously. On a general level they agree on a certain creativity conception, however information can be hardly exchanged between the two fields without additional interpretation or accommodating the information into their particular scheme. Scientists distance themselves from the commercialism with inaccessible and unintelligible formulations. Creativity technicians take from the scientific approach that what is most practically valuable, so fine nuance and careful formulation might be lost. Yet, despite of losing their scientific character along the way, scientific ideas of eminent figures like Guilford and Koestler have become more popular. Meanwhile the public opinion on creativity seems to have become increasingly liberal and less romantic, at least for politicians and economists interested in human productivity. By now many agree on that creativity is instrumental and available to everyone. Some contemporary creativity research has joined the chorus praising creativity as the new direction for humanity, encouraging education to be more creative.

Interaction or cultural embeddedness?

Now, has the move from geniuses to everyday creativity been based on a scientific change of norm or has it been part of a wider cultural movement advocating values of democracy, individuality, productivity and instrumentality? Creativity has been very susceptible to cultural changes, as it has been heavily value laden. It has been interpreted and defined in culturally valuable ways throughout history. Even its acclaimed domain specificity is suspected to be an effect of a society that has demanded specialization of its citizens (Plucker & Beghetto, 2004). Cognitive science and creativity marketing have something in common, yes, but the direction of the effect is unclear and there might be a fair amount of cultural confounding behind it.

Creativity has not been a particularly well defined scientific human kind, nor has it been very directly or successfully implicated. On a more general level there have been changes in its conceptualization. Even though some people still believe that creativity takes genius, the belief that creativity is available for everybody has become more popular. It is especially favored by policy makers that closely relate creativity to innovation. On a European scale teachers seem quite convinced that everybody is potentially creative and can learn to be more creative. This might have real practical effects in the future. Such effects are, rather than a looping upon a classification, likely to be consequences of cultural conceptualization. For not only did scientific creativity become more democratic and instrumentalist, so did Western society. Within this context it would be politically incorrect to not make something as economically valuable as creativity publicly available. It is very hard to distinguish the scientific norm from a general cultural development. The move that is observed, or rather the emergence of creativity as instrumental next to enduring romantic ideas, can be due to an intricate interaction between science and its public. However, it can also be maintained

that there really is no division between the two, that they are embedded in each other and that instead of interacting they simply move and develop together. Scientific approaches and popular opinion mutually influence each other or they are one and the same thing under cultural development. Danziger's approach seems more appropriate for understanding the move from *Creativity* to *creativity*. This changing of theoretical frameworks reflects historical developments and cultural values. A looping effect occurs within a specific field or practice, depending on a certain definition and application. Psychological creativity has been too general, *Creativity* too cultural and *creativity* too abstract to perform a loop. The looping between theoretical frameworks is more likely the embeddedness of these particular conceptualizations in their particular context, and consequently a move along with cultural discourse.

Creative kindness

Is a creativity not a human kind for not successfully looping? It certainly is heavily value laden. Probably *because* of its cultural value it is impossible to be scientifically classified and consequently loop. Creativity makes too many cultural caprioles to fit in a neat scientific order. So, as Bowker and Star indicated, either ambiguously developing creative reality has to be paralyzed into classification, or classification has to become fuzzier and messier to accommodate creativity. Certainly psychologists have made an effort. From general definitions that do not distinguish or indicate intervention, to very specific definitions that cannot capture its cultural value or set a practical norm. Actually accounting for the cultural value of the concept, and recognizing that creativity therefore is not merely individual, would stretch beyond psychological reach. Psychological study of creativity focuses on the individual and does not aspire to explain the cultural phenomenon. Creativity thus escapes psychological explanation through the loophole of its cultural value. Furthermore, creativity has been widely recognized as a typically human characteristic, or rather as a general property of human kind. Although creativity might not be merely individual and has not been that much of an interactive kind, for being valued and human it does possess a kind of human kindness. At least, to suppose that this psychological category is a natural kind seems inappropriate. Some conceptions of creativity are clearly human and value laden, demonstrating cultural kindness. Others indicate computational kinds; the elements of psychological models that historically developed. Indeed they reflect discursive context, and following Danziger's criterion creativity in its many forms is a human kind.

Now creativity does not perform a scientifically induced looping effect, but surely Hacking would not maintain that therefore it is a natural kind. Eventually his phrase 'interactive kinds', tightly joining human kinds and their looping effects and the social sciences together, did not work too well (Hacking, 2006, 2; Martínez, 2009). So if natural kinds can display some sort of looping effect, can a sort of human kind without looping effects be considered too? Creativity does demonstrate cultural interaction effects. It could be a particular kind of human kind, maybe a self-ascriptive one. As *Homosexuality* became *homosexuality*, a kind for which science no longer holds the veto but the public, *Creativity* became *creativity*, a kind no longer controlled by an elite but by the public. Both kinds went from being exceptional to being common, even though in the latter case no clear scientific norm was distinguished and no particular interest group was formed. The vector of making up people pressing from below overpowered the scientific labeling. Following Hacking's other criteria of human kinds, creativity does fit in. It is peculiar to people, it interests us, it is a subject for the human sciences and we would like to have knowledge about it that is systematic enough to be able to intervene. That we don't have that knowledge, that scientific classification was not successful and

no looping effect occurred is not a reason for dismissing creativity as a human kind. This would be throwing out the baby with the bathwater and this kind can obviously not swim along with natural kinds.

What is a successful kind anyway? When the looping effect is the criterion, success of a human kind means (inter)personal impact, both positive and negative. Ultimately it means a change of the kind itself. Success of a kind could annihilate it, because the kind becomes a variation or new version of what it was. Successful looping means transformation. Psychological categories such as creativity are not particularly successful. Bad news for psychology? *"The standards of success in a science are partly determined by the science itself."* (Hacking, 2000, S63). Psychology does not measure its success in terms of practical impact, but in terms of validity and reliability. Actually ending up in a paradox or looping could mean failing miserably, it could be perceived as the scientific subject causing measurement error. A practically unsuccessful psychological category could have a fair amount of impact within the scientific community. Of course scientific impact is boosted by practical effects, just consider the allocation of research funding, but scientists can be quite persistent in their unpractical investigation. According to Hacking (2000), the determining of success according to scientific standards is quite tautological. Success is a mutual enhancement between a framework and the knowledge it delivers. An a posteriori recognition of that what was already a priori assumed. Nevertheless there are different kinds of success for different kinds, as they are made up in different ways. Some are practical loops, some are scientific tautologies.

That creativity is not successful, is not only due to its value-laden definitional issues. Also it is due to the practical requirements for a looping effect that not all psychological categories can live up to. Hacking has not made a difference between fundamental research and applied research. He took human kinds to be applied. However, psychological categories can also be fundamental. Between applied and fundamental kinds there is a difference in effects, especially in their magnitude. Some scientific categories become more popular than others, because people find them more helpful. Commonly they are helpful when they aren't too general, but local and practical. Applied research is meant to be of practical value. It often evaluates existing practices, and comes up with knowledge in the context of existing practices. It is in applied science that categories like ADHD, depression, giftedness, fugue and homosexuality arise. Hacking's examples of looping effect have typically come from the areas of psychology meant to be helpful. In these contexts a need or wish or obligation to be better is present. Applied research looks for standards, deviance and ultimately intervention. Classifying people inevitably influences them, because it is meant to do so. Looping effects are evidently generated here.

Fundamental researchers however, often admit that their work has no instant practical value. They are building models and theories and not tend to draw implications. Based on what they are investigating it is very hard to know what is best or what would help. They have found many phenomena too intricate to allow for straightforward classification and practice. Also this research is characterized as a never ending story. The scientist would say that he never knows for sure. A politician cannot work with such an idea. Common practices do not allow for an intricate approach. A looping effect from this kind of research to practice is unlikely. Surely, the difference might be gradual. Fundamental kinds might have practical effects as soon as more is known about them and a connection between a practice and a theory is made. However, for creativity this has turned out to be quite complicated, in education ideology has been involved. Connecting fundamental research to

practice, the drawing of implications, was a matter of political decision. Correlations between fundamental and applied kinds are susceptible to cultural confounding.

The independent researcher cannot isolate himself from the larger picture and some historical or cultural value has been part of the input for his research. Danziger underlines that the investigator often does not even realize how 'valuable' his terminology or framework is, because it can easily be taken for granted. Fundamental and applied research both are culturally and historically embedded. In applied research values are clearly present, because current practices and norms are taken as a point of departure. In fundamental research values are hidden in the historical scaffolding of the theoretical framework. The research objectives and implications make the difference for success. Applied kinds are meant to be practical. Fundamental research definitions are too careful, complicated and distanced from practice to successfully loop. Yet they might have scientific implications and effects on research practices and unknowingly share a general framework with other cultural practices.

Creativity has not been successfully applied. It has not been completely fundamental either, compared with other fundamental research that involves biology, computer technology or mathematics instead of culture and value. Yet typically its definition has been a function of its approach. Little 'c' creativity, from an approach that emphasizes basic cognitive processes, is (constituted by) a basic cognitive process. Big 'C' creativity, from a personality approach, is an individual characteristic. For those focusing on positive psychology it is a matter of self-realisation. For socioculturalists creativity is not merely individual, but socially and culturally determined. Within the psychological subfield it might be quite successful, even a tautology, but not between them. Let alone in communicating *the* category of creativity to the public. A psychological category passionately desired by many will have to creatively deal with the battlefield of psychologies. In kindly adapting to every suitor it ends up in a state of either bad faith or with a multiple personality: as creativities.

Creativity involves more than scientific tautology though. Hacking's idea of a success is a transformation. According to Danziger psychological categories, fundamental or applied, are culturally embedded, and therefore demonstrate a particular brand of success. Creativity has been successful in the way that most psychological categories tend to be:

"In assessing the effect of psychological science on psychological kinds it is easy to overlook the biggest effect of all, namely, the reinforcement of existing culturally embedded preconceptions and distinctions." (1999, 81)

For being embedded in innovation, or any current cultural value system, psychological creativity is "profoundly conservative" (81). It became a many splendored confirmation of many splendored context. As such creative kindness has been successfully human.

Creative conclusion?

Many splendored creativity is, among other things, a psychological category. Actually several psychological categories. It is studied from many different angles. Also it is a public “hurray word”, mentioned and applied in many contexts. In all its diversity a scientific norm and effect of this norm are hard to distinguish, even when creativity is narrowed down to more particular creativities. Creativity, also in science, just confirms cultural values and political norms.

For creativity and maybe other similar psychological categories, Danziger’s approach is more relevant than Hacking’s. It acknowledges the balance psychologists strike between abstract universalism and social practice that changes scientific impact or practical value of a concept. As looping à la Hacking is not generated for creativity, the effect is not found throughout psychology. It is not likely to occur for more fundamental psychological kinds, as their definition is too tentative, intricate or abstract for successful intervention. More importantly, Danziger acknowledges that a particular context determines scientific classification. Hacking holds that kinds have a historical ontology. Yet in his argument human kinds are value laden because of their public impact, whereas Danziger’s psychological categories are derivatives of public value laden discourse. Even though the public conception might not be a consequence of the scientific understanding, historically and culturally the public and scientific understanding of psychological categories appear to be related. Many concepts in psychology, such as creativity, are culturally and historically classified, or confused. Value is inherently present in the scientific practices concerning human beings. Cultural classification then supersedes scientific classification.

Considering the validity problems in psychology and the historical studies showing that the psychological vocabulary is inherited from cultural discourse rather than given by nature, psychological categories are unlikely natural kinds. Even when they do not loop. According to Danziger value-laden frameworks and political history reside behind psychological kinds, also those taken for granted or perceived to be natural. Hacking too questions the self-evidently natural (2002b). Categories that appear to be natural might actually be biologized or inaccessible human kinds. Yet what distinguishes human kinds from natural kinds is not their historical ontology. All kinds can be either made up or discovered. What separates natural kinds from human kinds is that they are not intrinsically value laden. Natural kinds loop because they are attributed economical or political value. Bowker and Star suggest that even when a kind is biological it can be intrinsically value laden and demonstrate looping effects. The separation between human and natural kinds is therefore not a matter of the scientific fields of natural science on the one hand and human and social science on the other. Applied to human beings biology demonstrates some human kindness.

As not all human kinds interact under Hacking’s conditions, discerning intrinsically value laden kinds from extrinsically value attributed kinds becomes a more complicated matter. Applied psychological categories can be taken to be human kinds, also those resembling medical categories, because they involve norms that concern people and therefore are value-laden. The fundamental psychological kinds need historical investigation to see whether and how they are loaded with value. For not being interactive they cannot be considered indifferent or natural kinds, when their cultural value load is obvious. With a thoroughly cultural definition they can actually be beyond scientific reach, they are embedded and therefore beyond interaction.

The absence of a looping effect does not rule out the making up of people. Dynamic nominalism is still in function, as is historical ontology. However, the vector of autonomous behavior pressing from below is acknowledged as much as the vector of classification. Kinds of people and the knowledge about them coincide, but not only because a scientist says so. Hacking has shown that for a couple of human kinds scientific classification determines cultural practices. Danziger found that some discursive categories precede empirical findings. People are not made up in scientific classification or in cultural practice exclusively. More likely they are formed and changed by both.

To a high degree Hacking and Danziger actually agree. For Hacking *"the possibilities for what we might have been are transformed"* (2002, 110). For Danziger *"the discursive resources that might enable people to experience themselves and others differently are generally not available"* (1997, 185). Both human kinds and psychological categories have significant power. Because scientists partake in their formation, transforming or confirming the status quo, they are far from politically innocent. Of course people are involved with their own determination: they also do it to themselves. However, even if the public is in charge of half of the project of making up people, any scientist as part of a smaller privileged group has more authority than any non-scientist. This does not mean that they know more about people, merely that they are more entitled to determine what we are. This 'looking straight through you' in Hacking's line of argument is manipulation and in Danziger's is a consequence of sharing the same context. The classifications and categorizations can be more and less successful and that, to a large extent, depends on how ambiguous and capricious we are, or decide to be. Indeed Bowker and Star add to the equation that the more frivolous caprioles we make, the less power scientific rigor will have.

No practice of making up people is the same, the categories have different histories. Some involved more successful scientific practice others involved more cultural classification, for others the scientific and public discourse can hardly be told apart. For creativity it has been particularly difficult to separate science and public and present these two fields independently. It would seem that science and Western culture are embedded in each other and develop together. Latour⁷¹ has suggested something similar for technology and society, taking mutual development as a solution for the 'what came first' dilemma instead of separating the natural from the cultural. In such a scenario psychology and its public can hardly be distinguished. Method then does not guarantee a separate status; rather it is involved in the same historical development, a norm defined under the same values. In the interaction scenario, method cannot help that the psychological object enters in a conversation with his very own science. The public determines psychology, as psychology determines the public in a historical game of tag. One myriad way or another psychology and its public are brought together. Practices of human kindness overflow with value, and in psychology too rain clouds the judgment.

⁷¹ Latour, B. (1994). Pragmatogonies: A Mythical Account of How Humans and Nonhumans Swap Properties, *American Behavioral Scientist*, 37, 791- 808.

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