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Michalis Kontopodis

University of Amsterdam, Amsterdam, The Netherlands

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Biomedicine, psychology and the kindergarten: children at risk and emerging knowledge practices

Michalis Kontopodis*
University of Amsterdam, Amsterdam, The Netherlands

This study moves in the space between two fields: science and technology studies (STS) and childhood studies; it thus belongs to the broader STS literature that investigates everyday practices outside the laboratory. The interpretation of ethnographic and bibliographic data on contemporary cardiovascular and obesity prevention in German kindergartens makes evident that when knowledge travels from biomedical laboratories to the preschool, then psychology comes into play! Bodies of knowledge such as behavioural or cognitive theories shape prevention and intervention practices, which could be seen as originally resulting from biomedical findings and trends. Accompanying this development is a change in the primary sciences that deal with childhood: these are no longer pedagogy or developmental and educational psychology (at least in their traditional forms), but ‘developmental science’. All this shapes contemporary childhood in quite normative ways. It thus remains an open question what non- or less normative institutional practices and bodies of knowledge could look like.

Keywords: Biopower; Biopedagogies; Cardiovascular risk; Childhood; Critical analysis; Critical psychology; Developmental science; Food kindergarten; Obesity discourse; Preschool

Prelude: ‘We like to eat apples’

We like to eat apples and turn ourselves around/Because apples are healthy, as everybody knows/

We like to eat vegetables and then bend our knees/Because vegetables give us energy, and we’re never tired/We like to drink water and like to eat fruit/Because water gives us a boost and fruit gives us strength/We like to go outside and like to run around/Because sports are fun, and sports are healthy. (Song text, repetitions omitted, translated from German by K. Schaffer)

Imagine children standing in the classroom of a kindergarten, learning to sing ‘We like to eat apples’. How could such a scene be analysed? Following Elias, one could describe the way the body is disciplined in the school by the group of children singing and moving according to given norms (simple rhythms, Western music scale) (Elias, 1982). The song is not just memorised or read but is performed in a group, thus

*Amsterdam Institute of Social Science Research, University of Amsterdam, Kloveniersburgwal 48, 1012 CX, Amsterdam, The Netherlands. Email: michaliskonto@googlemail.com

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creating a social space in which different children are invited to participate (Wulf & Zirfas, 2004). What is not happening, however, is the eating of apples (cf. Mol, 2008; Guggenheim, in press); neither do children ‘go outside’ and ‘run around, because ... sports are healthy’ as the song tells.

One could argue that it is not the activity of singing as such, but the meaning of the song text that is here of primary importance. It mediates biomedical knowledge about healthy food that children are supposed to appropriate. This knowledge is part of a broader discourse—that of the ‘obesity epidemic’. The prevention of cardiovascular disease and of obesity, can be seen as one of the major applications of biomedical knowledge in today’s world—although when compared to genetic research or organ transplantation it can be referred to as a non-spectacular field (Beck, 2002; Kontopodis et al., 2011). Science and Technology Studies (STS)-oriented literature has analysed how biomedical research introduced the term ‘metabolic syndrome’. This term was supposed to conceptualise a series of phenomena related to cardiovascular risk and disease, translating findings from fields as diverse as evolutionary biology, neuroendocrinology, clinical medicine and public health into new diagnostic and cure practices as well as prevention programmes (Döring & Kollek, 2010; Niewöhner, in press). Gard, Wright and Harwood have in turn analyzed how, in response to biomedical research, public health officials, economists and health politicians have proclaimed obesity a major epidemic throughout the entire industrialised world (Gard & Wright, 2005; Wright & Harwood, 2008).

Although there is little agreement in regard to various issues regarding ‘obesity’, a common topos among many scientists, politicians and people working in prevention promotion is that the obesity epidemic can be treated most effectively by prevention practices.1 Gard, Wright and Harwood however argue that obesity is a socially constructed concept. Other studies in a similar direction talk about a ‘fat panic’ (Saguy & Almeling, 2008) and connect it to globalisation and neoliberalism (Guthman & DuPuis, 2006).

The song ‘We like to eat apples’ can be seen as exemplary of intervention practices that emerge as a result of this ‘fat panic’. It was written for children by Dr med Dominic Hartl and Dr von Haunersches, both who work for the Stiftung Kindergesundheit (Foundation for Children’s Health) at the Children’s Hospital in Munich. It is one of the songs that can be found on the webpage of the project ‘TigerKids’, which was designed to support the prevention of obesity in children and is the most widespread project of its kind in Germany. It is applied in cooperation with individual kindergartens or associations of kindergartens—including one that was the main site of the ethnographic research presented in this article.

The song seems to be part of what is called ‘body pedagogies’ (Evans et al., 2008a; Rich & Evans, 2009), ‘body pedagogics’ (Shilling, 2008), or ‘biopedagogies’ (Wright & Harwood, 2008). A growing body of studies explores how biopedagogical values around food, eating and fatness are transmitted through families and schools. In this context, the current emphasis on health, fitness and obesity prevention is interpreted as a more general trend reflecting the importance of performance and individual
success in the educational system of developed Western countries (Evans et al., 2004; Rich & Evans, 2005, 2008; Gingras, 2009). Evans, Rich, Davies and Allwood suggest that:

Body pedagogies are any conscious activity [under]taken by people, organisations or the state, that are designed to enhance individuals’ understandings of their own and others’ corporeality. (Evans et al., 2008b, p. 17)

Early childhood settings have been widely studied as sites where meanings around childhood and health are produced and governed (Evans et al., 2003; Burrows & Wright, 2004; Robinson & Davies, 2008). Obesity prevention seems to re-territorialise this ‘terrain’ (cf. Niewöhner & Kontopodis, 2010). There is a growing body of studies that critically analyse the consequences of obesity prevention in educational settings (although most of them refer to late childhood and adolescence and not to early childhood, which is our focus here). Such studies often point to the danger of excluding overweight people and the growing pressure young people and especially girls and women feel to be slim in order to feel accepted at school (Evans et al., 2008b; Colls & Evans, 2009; Guthman, 2009; Rawlins, 2009; Rich & Evans, 2009).

But why would one write and perform a song in order to prevent obesity and cardiovascular disease? How are children expected to appropriate values about health, food and fitness by learning a song text? The above-mentioned literature cannot give a full answer to this question. As we will see in this article, when biomedical knowledge travels from biomedical laboratories to educational institutions then psychology comes into play. In accordance with quite popular multimodal educational and cognitive developmental psychological approaches (Goswami, 2003; Jewitt & Kress, 2003), the song is designed to transmit knowledge to children in a way that they can understand and appropriate it according to their age and cognitive development. The information that drinking water instead of juice, eating fruits and playing sports can prevent obesity and cardiovascular disease is expected to affect the way children think, take decisions and control their behaviour.

In this article I will argue that biomedical knowledge is not simply transferred from academic and research institutions to kindergartens, thus shaping biopedagogies. It is on the basis of scientific and popular psychological knowledge that politicians, public health officials and teachers design biopedagogical interventions in the everyday lives of children and families in order to prevent cardiovascular disease. This knowledge can be traced back to quite classic traditions of psychological thought, but has also changed and developed in order to respond to emerging institutional needs.

In this frame, I aim to explore the role that developmental psychological knowledge plays in emerging everyday biomedical practices outside biomedical laboratories—i.e. in kindergartens. I also investigate how developmental psychology itself is changing in order to play this role. I give particular emphasis to the knowledge that lies ‘behind’ or ‘under’ everyday practices, as well as to tracing links between everyday practices in kindergartens, early childhood politics and research politics/academic knowledge production. In doing this I refer both to what
Mannheim calls ‘implicit knowledge’ (Mannheim, 1980/1924–1925) as well as to explicit trends in current academic knowledge production.

**Research fields and methodology**

In order to investigate the questions outlined in the previous section, the article looks at different data sets: ethnographic data from kindergartens on the one hand, and qualitative content-analytical data from popular and scientific literature on obesity, cardiovascular disease and healthy child development on the other. My specific field is a critical inquiry into the prevention of cardiovascular disease and obesity in preschool-aged children in Germany, while at the same time I consider a broader set of international data from the relevant scientific literature (because most relevant research is published in English).

The scientific literature encompassed often-cited journal articles from all possible disciplines associated with cardiovascular disease, obesity prevention and healthy child development. Specific attention was given to new interdisciplinary and thematic journals as well as to special issues and their editorials. Expert interviews with important figures that shaped the research on the so-called ‘metabolic syndrome’ as well as participant observation in biomedical congresses guided this literature search. The data analysis combined principles and methods from the sociology of knowledge and discourse analysis (Keller, 2005).

The popular literature and informational material I collected and analyzed was mainly written in German for parents and teachers. It encompassed leaflets, posters, DVDs and websites designed for prevention purposes by insurance companies and public health authorities or public health services. I collected these materials from public events for teachers, health practitioners, parents and politicians that took place in Berlin from 2007 to 2009, from the parents and teachers with whom I cooperated, as well as from a broader set of Internet-based sources.

In Germany, all kinds of politicians have now incorporated the prevention of cardiovascular disease into their political agendas. Private and semi-private companies, especially health insurance companies, have also integrated prevention into their ‘social profile’—although this might be for purposes of advertisement or other motives. This takes place on the ground of a long German history in the public prevention of chronic diseases. Throughout this history until today, a tension has existed between individualised notions of health and more population-oriented ones, leading to different dominant modes of preventive medicine in the country’s different historical eras, from the Weimar Republik, Third Reich and the post-war period to later times marked by the movement of Soziale Medizin (socialised medicine) (Niewöhner et al., 2011).

Framed in this context, the ethnographic data presented in this article stem from ethnographic case studies of three kindergartens in Berlin. The kindergarten to which I will refer here is a public one and participates in the project ‘TigerKids’ of AOK (Allgemeine Ortskranken-Kasse i.e. General Funds for the Local Ill), which is...
one of the main health insurance providers within the national health cover in Germany. As already mentioned, the project ‘TigerKids’ was designed to support the prevention of obesity in children and is the most widespread project of its kind in Germany—which was the reason I selected associated kindergartens for my research. ‘TigerKids’ has encouraged diverse interventions such as the modification of playground architecture, an emphasis on sports, the continuous provision of fruit and water at the kindergarten, discussions about home nutrition and information for children and their parents by means of toys, songs, pictures and texts about food and health.

The neighbourhood where the kindergarten belonged is part of a former East working-class neighbourhood with low migration rates—the few migrants living here come mainly from East Asian countries. Similarly to most public kindergartens in Germany, this kindergarten had more than 150 children aged between 1 and 5. The kindergarten prepared two meals a day for all children and teachers. These meals were prepared by special staff in a kitchen inside the kindergarten building. Significant differences existed between this kindergarten and other ones, mainly regarding the population mix as well as the teachers’ education and the implied attitudes towards food, health and fitness. While in other studies I interpret comparative data (Kontopodis, 2009), here I will focus on the singular case of this kindergarten and present exemplary materials that reveal major trends I observed in all three kindergartens—regardless of their differences—and answer the research questions presented in the introduction.

My access to this kindergarten was relatively uncomplicated because I was a university researcher (which implies high status), and at the same time had experience and interest in working with children (which was important in terms of practicability). I was associated with a group of about 20 three- to five-year-old children and the three or four teachers responsible for them. I visited the kindergarten several days per week for an overall period of five months. My research involved ethnography, expert interviews, theatre play and photography by the children and visual anthropological methodology. I asked parents to sign an informed consent form, and I followed German laws and general ethic principles of child research.

Following newly developed approaches in child research; I also tried to combine ethnography with activities where children were explicitly equal participants in constructing the research itself, such as theatre improvisation and photography by the children (Christensen & James, 2008). My participant observation included playful interaction with the children, taking field notes, and, if applicable, the assistance of the children and staff with their tasks. I encouraged the children to express themselves about the research issues in their own words. I also led an activity in the kindergarten in which the children were asked to perform how they eat in their everyday lives in the kindergarten and in other situations (theatre improvisation). In order to examine the children’s everyday practices from the perspective of their educators, participant observation was supplemented with a few expert interviews with kindergarten staff and parents/guardians (Gläser & Laudel, 2004). In the
following I will present exemplary materials that reflect this whole data set; through
these materials I will identify some more general trends in the production,
translation/popularisation and distribution of relevant scientific knowledge.

**Provision of proper information and shared decision making**

At the same time, Moritz (the second ‘fattest’ child in the group as seen from the
perspective of the teacher) and Jan (‘thin’) request permission to have a second
portion. The teacher first denies answering their request, saying that if they all
speak at once she cannot understand what they want. She says that Jan is the first to
speak. Jan politely requests a second portion. The teacher says: Klar, nimm dir
noch was (of course, take some more food). Moritz is the next to speak. He is also
very polite, clearly accepting the rules, and asks for a second portion. The teacher
answers: ‘Ich weiß nicht ob du darfst’ (I do not know if you are allowed to – take a
second portion or not). In this way she does not take the responsibility of denying a
second portion to Moritz (which could be a reason for parents’ complaints) but also
does not automatically accept his request. Moritz is the one to decide.

This ethnographic scene stems from my observation in the kindergarten described in
the previous section and is typical regarding my other ethnographic material
from this kindergarten. The teacher explained to me that she tried to control how
much the two or three boys of the group who looked a little bit ‘fatter’ than the
others, as seen from her perspective, ate for reasons related to their health. She also
told me that they always wanted more and could eat everything, that they would not
have left enough for the others. On another occasion the teacher explained to me that
these two boys had been diagnosed as ‘obese’ by the paediatricians cooperating with
the kindergarten. The teacher believes that she knows how much the child should
eat. At the same time, she does not express this directly because eating is a morally
loaded issue—at least for the children who look ‘fatter’ than the others, as seen from
the perspective of the teachers.

In this constellation, while most children are easily allowed to have a second or
even a third portion, the extra portion is a matter of negotiation between the teacher
and the two or three who look a little bit ‘fatter’ than the others, as seen from the
perspective of the teacher. These children—in this case a boy named Moritz—are
expected to participate in a ‘shared decision making’ to the extent that this is possible
in such a spontaneous everyday situation. Involvement in decision making implies
that the child is expected to take a quite rational decision on the basis of available
information. Available information about health on the one hand and the teacher’s
and the child’s preferences, needs or desires on the other hand must be balanced by
the ‘obese’ child. Part of the information available (even if not directly) is the song
text presented at the beginning of this paper, as well as other, similarly mediated
knowledge.

A child is enacted here as an information processor—as a mind that can control the
body on the ground of proper information (Diamond et al., 2007). The rather
normative understanding of the ‘developing mind’ implied in this approach is based
on the psychological knowledge produced by the school of Piaget and further
developed by Ulric Neisser, Jerome Bruner and others. Child obesity prevention often functions by providing the ‘right’ information and developing the ‘right’ understanding about what constitutes ‘healthy’ food or ‘nutritional values’.

It is also assumed that information can be transmitted and appropriated in different ways according to the child’s age. What is also very important here is the implied developmental psychological understanding that children will learn and apply their knowledge when making decisions in their everyday lives, even after they have graduated from educational institutions (Walkerdine, 1993). Within this approach, the cardiovascular prevention logic attempts to perform a deeply modern dichotomy between the physical body, with a natural tendency to accumulate excess body fat, and the mind that must find the strength to discipline that body. This is not, however, the only type of psychological knowledge at hand—and this is not the only way psychological knowledge functions in the context of cardiovascular prevention.

**Behavioural approaches and the immanent child**

The cognitive approach described in the preceding section was usually mixed with other distinctive approaches in most child obesity prevention practices I observed, including those of the TigerKids project. According to another—rather behaviourist—approach, children learn how to eat and live properly by rewards, by punishments and by imitation. Therefore they should become accustomed to the correct eating and sports-related behaviours. State institutions are responsible for offsetting the negative effects of advertisements, which according to this approach also provide children with model behavioural patterns. In place of the negative behavioural patterns and models, state institutions should supply children with positive ones. When children have learned to eat and live properly, institutional practices will no longer be needed and children will eat healthily and exercise for the rest of their lives. This understanding is found in the discourses of prevention specialists, for example:

Prevention has to come in before deficits start, before damage occurs. And hence also before habits become manifest. Once [the children] have grown used to a comfortable life, it is very difficult to change them. But if they become used to walking to kindergarten or school everyday, then this becomes a matter of course. And much of this is mmh trainable let’s say – it’s a matter of habits. (Developer of an award-winning fitness programme for kindergarten children, interview conducted and translated from German by J. Niewöhner)

One can see in this extract, which was typical of our research materials, how normative practitioners think about children and their development. The developer of an award-winning fitness programme in Germany is afraid that if no early intervention takes place then the child will be ‘damaged’. In this extract one can also see the behavioural understanding of child development as dependent on environmental influences and as stabilised by the repetition of certain behaviours. The interviewee also believes that development is quite linear and habits will remain once
children get used to them. How the continuity between the early development of habits and adult life is taken for granted is rather remarkable and can be seen as exemplary of popularised versions of complex biomedical and epidemiological data and psychological theories.

An example of this approach can also be found in special print materials that the TigerKids programme designed to reward the children who brought healthy food to the kindergarten. I could mention a colourful paper table with the names of all the children of one class written on it that hung on the door of the classroom the whole school year. The table was designed so that teachers could give points to one child each day she/he brought ‘healthy’ food from home for his/her snack. If a child brought a banana or whole-wheat bread with cheese and tomato, this child would gain a point while another child who brought chocolate would not. At the end of the week, the teacher was expected to reward the children with the most points by congratulating them in front of the class.

This table was invented by the TigerKids central team, which also designed a series of other similar materials and distributed them to kindergartens all over Germany. The point system did not function in the end, because if a child was ill and absent for a day or more, she/he would not get any points at all, so after some days of absence it was not clear if a child had less points because she/he was ill or because she/he had brought unhealthy food for his/her snack. However, teachers worried about not using the table and wondered how to use it better. I think that this table best manifests the behaviourist understanding that I am analysing here in the sense that a reward is expected to establish a ‘proper’ behaviour in the children. In this frame, the child is not mainly seen as an active subject who constructs his/her environment, but as a largely unformed substance formatted according to his/her environment. Points, rewards, punishments and the imitation of proper models are expected to establish proper eating habits and behaviours in children.

Following a quite similar understanding, teachers also used a series of other rewards or punishments in order to control children’s eating behaviour, especially the behaviour of those children who looked ‘fatter’ than the other ones (as seen from the perspective of the teachers), and sometimes of their parents as well. The teachers regarded access to particular toys or games and—ironically enough—to desserts and ‘healthy’ sweet food such as low fat ice-creams or yoghurt to be rewards. Respectively prohibiting access to such food was regarded a punishment. Such rewards or punishments were announced distinctly enough so that all the other children could pay attention and also ‘learn’ from them.

Although I cannot present all such examples in full detail, I think that it is important to understand that these practices differ in principle from the cognitive-oriented ones described in the previous section. To some extent—even if not absolutely—children are seen as ‘tabulae rasa’ that must be properly formed in quite mechanistic ways by repetition of the same reward or of the same behavioural pattern. This rather normative understanding of the ‘immanent child’ as characterised by James et al. (1998) is grounded on more than 100 years of behaviourism, which began in 1890 with Ivan Pavlov and was continued by important figures in the
science of psychology such as Edward L. Thorndike, John B. Watson and Burrhus F. Skinner. This paradigm is usually mixed with other approaches in current scientific research (e.g. Rolls, 2011), but seems to remain quite popular among teachers and parents (Okie, 2005).

Furthermore, a quite linear or mechanistic notion of development is implied by behavioural approaches: if a child gets used to eating modestly, or drinking a lot of water, or drinking water instead of juice, it will not only be healthy as a child but it will also be used to a healthy lifestyle, which it will more or less continue as an adult. This understanding of development can of course be found in the entire discipline of developmental psychology, and not only in its behaviourist version (cf. Morss, 1996). But how exactly is this understanding configured?

**Moving from the parts to the whole: health and developmental science**

The ‘vision of our healthy TigerKids children’ (Figure 1), comes from the official webpage of the TigerKids programme (date of access: April 2011). What we observe in this pictorial representation is a transformation of a child’s eating habits, which appear to be wrong soon after the child is born, into healthy habits that are symbolically represented by an apple, a thin body and the tiger, the mascot of the ‘TigerKids’ programme. As an imagined figure, the tiger embodies health and strength and is supposed to reward children when they eat healthy foods. Furthermore, the tiger symbolises all the interventions undertaken in the ‘TigerKids’ programme, which bring together health specialists, sport associations and educators in a place where some years ago only educators would be active. Such programmes and interventions are also very common in the USA and elsewhere (Conduct-Problems-Prevention-Research-Group, 2011).

Social workers, educators, counsellors, school psychologists, health practitioners, policemen, communications researchers, economists, developmental psychologists, neuroscientists, paediatricians and parents/adult family members cooperate in everyday life to develop formal or informal local, situational, micro-educational

![Figure 1. The vision of our healthy TigerKids children (original figure title, translated from German by M. Kontopodis) see: http://www.tigerkids.de/projekt-informationen.html (date of access: April 2011)](image)
networks in order to control children or to support their development into ‘healthy’ adults. School is no longer the only institution that forms childhood: ‘Institutions merge together; their practices dissolve, become interchangeable and amalgamate in new virtual spaces’ (Papadopoulos, 2005). What brings together all these institutional practices is no longer learning and professional education, but health. In turn the primary sciences that deal with childhood are no longer pedagogy or developmental psychology (at least in their traditional forms), but developmental science.

Even if cognitive- or behavioural-oriented approaches inspire preventive interventions as described in the preceding section, these approaches can neither provide a good explanation for the reasons of health-related problems and cardiovascular disease, nor effectively treat these problems as soon as they emerge (i.e. in early childhood). However, explanations and solutions to these problems are not provided by biomedicine, either. A quite holistic notion of healthy development comes into play here, and (developmental) psychology begins to transform itself, moving beyond its own limits and traditions in order to fill a gap both in theory and in practice. Developmental psychology turns then into developmental science, which brings together quite diverse pieces of knowledge on physical, mental and emotional ‘health’ while trying to develop a language to speak about ‘health’ in general and participates explicitly and directly in designing preventive approaches being funded for this.

Developmental science integrates concepts from developmental medicine, human genetics and developmental and clinical psychology to understand behavioural adjustment and maladjustment in children, adolescents and adults as a product of the transactions between the child, its biological organisation and its social experience (Petermann et al., 2004; Scheithauer et al., 2007). It is difficult to trace this tendency back to a specific developmental psychological tradition because such diverse types of knowledge come together here: socio-economic statistics, epidemiological data, psychoanalytic models about emotional development, behavioural patterns, cognitive techniques, the classifications of mental and learning disorders and experimental neurobiological and genetic findings. The field is new and quite open to combining different models, methodologies and bodies of knowledge with each other—including ethnographic methods such as interviews or participant observation (Yoshikawa et al., 2008).

Developmental science is, however, as normative as developmental psychology (cf. Walkerdine, 1993; Burman, 1994). What exactly ‘healthy development’ is, is not usually questioned or defined—it seems to be self-evident and quite similar for all the different experts. Within this holistic understanding, healthy bodies and healthy minds are thought together, because, ideally, children grow up in a happy, healthy and stimulating environment. What it is to be ‘healthy’ and how different types of ‘health’ inter-relate with each other is considered to be beyond any question:

Understanding developmental processes in typically and atypically developing children provides guidance on how to optimize positive development as well as how to prevent or minimize problematic outcomes. (Guerra et al., 2011, p. 7, emphasis added)
Where does this normative understanding of health, ‘positive’ development and ‘problematic’ outcomes come from? Developmental scientists themselves argue that this understanding is related to a critical shift within developmental research that emphasised the end usability of research on basic processes of health improvement that initially emerged in the field of medicine; such research was ‘characterized as connecting “bench to bedside” (Insel, 2005)’ (Guerra et al., 2011, p. 7). This shift then became influential in social psychology and developmental psychopathology, and was constitutive for developmental science as an emerging discipline:

Within developmental studies, there has been increased focus on the connection between normative development, atypical development, and intervention, including the importance of understanding atypical development through a normative lens that can guide interventions. (Guerra et al., 2011, p. 7)

One could, however, argue that mainstream psychology has always implied and reproduced a modern white middle-class male understanding of what ‘health’ and ‘development’ is (Danziger, 1990; Morss, 1990; Walkerdine, 1993). This understanding is reconfigured when developmental psychology becomes developmental science, when it imports current biomedical knowledge and methods and then translates them back into institutional and inter-institutional practices. Both the notion of ‘health’ and the notion of ‘development’ are crucial in bringing different bodies of knowledge and different childhood-related practices together. In their recent combination, however, one could also argue that both notions have changed their meanings. The notion of ‘health’ becomes more holistic, as noted above, and less evidence-based. The notion of ‘development’ as well becomes equivalent to the notion of ‘prevention’, which implies a rather reverse temporality: it no longer carries its positive modernist connotation of progress or improvement but designates the avoidance of future risk.

What is indeed interesting here is that the temporality implied in the models of child obesity prevention is no longer that of the ‘naturally developing child’ as we know it from Rousseau, Piaget and others. Instead, in order to avoid development towards a ‘given end’ defined as a bad future, a child as well as his/her caregivers must be active from now and the rest of his/her life. This reverse temporality is depicted in Figure 1.

Figure 1 reminds us of early modern understandings of the fragile child nature, which dominated early modern social and charity work (James et al., 1998). In early modernity children, even if perceived as innocent by nature, were thought to be at risk and in need of being protected (Burrows & Wright, 2004, pp. 85–86). With even more uncertainty about the future of the society depending on children, than in early modernity, children as a population are nowadays seen as a potential threat for the well-being of society, and are even less perceived as subjects of innovation and social change.
Moving from practice to theory (and back): translational research

Paradigmatic for the development described in the preceding subsection is one of the most recent special issues of *Child Development*, which is one of the oldest and most well established international journals of mainstream childhood research. The special issue is entitled ‘Raising Healthy Children: Translating Child Development Research into Practice’ (Guerra *et al.*, 2011). This special issue resulted from an innovative open call for papers that I received as a member of the Society for Research on Child Development in February 2008.

The call for papers aimed to sum up research that has ‘received considerable recent attention and priority’ and (as seen from my perspective) was indicative of a more general trend to bring together social values such as adjustment or justice with a general understanding of ‘well-being’ and ‘diagnosis, prevention and treatment of physical and mental illness’. The issue aimed to develop a discussion about:

1. *Socio-Emotional Well-Being and Mental Health* – covering a variety of healthy outcomes associated with social and emotional functioning or specific mental health issues, including but not limited to attachment, peer relations, social skills and competence, empathy, moral development, emotion regulation, and resilience.

2. *Physical Health* – including outcomes indicating general physical health and wellness or healthy adaptation to specific medical issues and conditions, including but not limited to nutrition, diet, exercise, stress management, coping, and adaptation to disabilities.

3. *Problem Behaviors*—concerning outcomes related to the prevention of or desistance from specific problem behaviors including but not limited to high-risk sexual behavior, early school dropout, aggression and violence, juvenile delinquency, and substance use and abuse. (Guerra *et al.*, 2011, p. 8)

I think that this call expressed exactly the aims of developmental science as a new discipline: it creates bridges between biomedical research, psychological research and everyday institutional practices, and covers all possible child-related topics and problematic phenomena. However, as the editors of the special issue noted:

> on average, the [received] articles focused more on social and emotional outcomes and prevention of problem behaviors, with fewer articles focusing on physical health […] perhaps these articles are more likely to be submitted to medical/health journals (Guerra *et al.*, 2011, p. 8)

Incidentally, this expresses quite well the current state of developmental science, which is still a new space in academia and is striving to expand itself.

In the end, the special issue included only one study on physical health (about childhood obesity and how it is affected by mother’s work schedules (Morrisey *et al.*, 2011). All the other articles covered topics related to socio-emotional well-being, mental health and problem behaviours, such as: the impact of part-time work during high school on adolescents’ academic, psychological and behavioural outcomes;
school readiness; the prevention of psychological problems related to divorce; child aggression and victimisation; mental health and coping processes in families and children, including the links between parent and child depression; bullying; and the promotion of social and emotional learning.

Most interesting here are not the different topics, specialists and methodologies that have come together under the same umbrella, but the orientation of all this research. The call explicitly asked for papers that would refer to:

- interventions, practices, and policies that will help enhance well-being and/or decrease prevalence of mental health, educational, physical health, child welfare, and/or juvenile justice problems.

The special issue was to focus in particular on basic research and efficacy and effectiveness studies of ‘programs clearly grounded in basic developmental theory intended to promote healthy or normative level adjustment and functioning’. In this context ‘the prevention and treatment of illness and psychopathology’ and ‘the promotion of health and well-being in general’ were considered of primary importance.

In this context the special issue presents what is called translational research, i.e. research that examines ways of applying theory into practice and that measures the effects of concrete programmes and policies:

Translational research is best understood as a way of thinking or an alternate paradigm that seeks to blend rather than dichotomize basic and applied research towards the common goal of improving the human condition. (Guerra et al., 2011, p. 7–8, cf. also Shonkoff & Bales, 2011)

Another similar notion is that of use-inspired research, which takes central stage in developmental science. This notion implies that translational research not only requires ‘the design, testing, and dissemination of prevention, intervention, or treatment programs. Rather, it suggests that all research, whether basic or applied, be developed with a consideration of how it can inform future application’ (Guerra et al., 2011, p. 11). Evaluation and standardisation become very important cross-disciplinary scientific activities here. As the editors note, ‘[t]he term “evidence-based practices” extends from medicine to education to child welfare, with federal and state agencies routinely requiring documentation of program effectiveness for funding’ (Guerra et al., 2011, p. 12).

The frontline of current developmental science is thus foremost translational research, and brings together all possible topics and aspects of everyday life in trying to ensure ‘healthy development’. Thus developmental psychology under its new label aims and seems to play an important role—if not the most important role—in what Peter Conrad called the ‘healthicisation’ of our developed Western societies (Conrad, 1992, 1994, see also introduction). This research explicitly values normative development and creates new bodies of knowledge and new expertise groups that enter the everyday lives of children and other people, and establish new preventive inter-institutional practices and interdisciplinary collaborations.
Similar discussions are taking place in Germany, where the (first) European Journal of Developmental Science was published in 2007.\textsuperscript{11} It is important to note that these discussions concern not only a community of specialised researchers, but also post-graduate students, teachers, sport educators and other practitioners who run various further training programmes for a short period of time. In this way this kind of knowledge is transferred to practice—in programmes such as the Tigerkids.

**Outlook: children at risk, psychology and (alternatives to) biopolitics**

The role of psychological knowledge in constituting power relations has been much studied in the past—however, not so much in relation to biopolitics. The critical psychologist Klaus Holzkamp has much criticised behaviourist and cognitive developmental psychological approaches for ‘colonialising’ childhood (Holzkamp, 1983; Holzkamp, 1995/1997)—a critique which echoes the early Foucault (Foucault, 1979, 1966/2002) as well as other critical positions referred to in this article. Moving from the earlier concepts of Foucault to the later one of *biopolitics* (Foucault, 1982, 1988; Foucault et al., 2005), we could say that in the context of today’s kindergartens, *health* is the main principle of organisation that reflects and creates power relations. As Wright suggests, one should draw:

> on Foucault’s concept of biopower to conceive of the body as inextricably bound up with life (or bios). This enables us to understand biopedagogies as those disciplinary and regulatory strategies that enable the governing of bodies in the name of health and life. (Wright, 2008, p. 8)

We saw in this article how cognitive, behavioural as well as broader developmental understandings shape everyday prevention practices, which only indirectly result from current biomedical findings and discussions. By means of psychological knowledge biopower is not only limited to the direct applications of bio-technology; biopower is distributed through psychology to a range of practices that affect children and childhood and transform pedagogy into *biopedagogy* (Evans et al., 2008a; Walkerdine, 2008). Children in turn are mainly categorised as *healthy* and *unhealthy* children. Unhealthy does not mean ill but *at risk* (Leahy & Harrison, 2004).

However one refers not only to physical health, but also to mental, social and emotional health and their interrelation. Here psychology comes into play as the (developmental) science that brings together all different bodies of knowledge (learning theories, understandings of health, various measurement techniques, population statistics etc.) and fills the gap between the biomedical laboratory and the kindergarten. A turn is thus made from body-mind school politics to inter-institutional and inter-discursive politics of ‘life as such’ (Papadopoulos, 2005; Fassin, 2009). Psychology in its changing role seems to be significant for this translation and this transition.

At the same time, it is clear that psychology and developmental science are not homogeneous bodies of knowledge and that a kind of ‘heterogeneous engineering’ is going on as reflected in the examples discussed in this article (cf. Law & Mol, 2002).
‘Child health’ or ‘prevention’ is nevertheless enacted as a ‘neutral’ or ‘universal’ value and complex power relations remain invisible or unquestioned. The question I would thus like to pose in concluding this article is: what could be done differently with regard to children and their ‘development’?

Neither biomedicine nor psychology or developmental science will ever achieve a final understanding of what ‘healthy child development’ is. The authority of expert knowledge can easily be questioned, as we know from the history of science and from STS (Kuhn, 1962; Law, 1994). Why shouldn’t then children themselves participate actively in the production of knowledge as well? Why should children just be enacted as the passive recipients of the ‘universally valid’ knowledge and the intervention programmes that adults design for them?

In contrast to psychology and developmental science, the (new) sociology of childhood—which is far more reflective about its history and understandings than psychology—has recently done great steps in making research with the children and not about or for them (Hallett & Prout, 2003; Matthews, 2007). With the use of visual technologies, it is also nowadays quite easy to create new languages for describing things and enable children not only to express themselves, but also to understand what the question at stake is, to experiment with different possibilities and to create new worlds, transforming their very status of being ‘children’ (cf. Behnken, 2009; Kontopodis, 2009). I would suggest that this could be a way to escape from or to transform current biopolitical and biopedagogical relations.

Such a shift, of course, would require a different distribution of work and power among all different ‘experts’ (including children). It would also require a kind of what Niamh Stephenson and Dimitris Papadopoulos describe as ‘outside politics’, which is ‘contingent, unpredictable, and unintentional’ and experiments ‘with unrealized trajectories, possibilities which do not yet exist (not even in the symbolic, nor the imagination)’ (Stephenson & Papadopoulos, 2006, p. 205). Wouldn’t such a politics bridge the gap between theory and practice in a very different way than current developmental translational research tries to do?

Notes

1. The step from interpreting complex scientific data into suggesting preventive projects that aim to increase individual responsibility and awareness so as to combat obesity is not a self-evident process. Especially nowadays, evolutionary, genetic or epigenetic processes and not simply food over-consumption or lack of movement are often regarded as causes of obesity, and there is still a lot of distance between biomedical knowledge and what seems to be its applications (Niewöhner, in press). However, a series of programmes for the prevention of obesity and cardiovascular disease still take place in kindergartens, schools and neighbourhood-based interventions.

2. One can trace a similar understanding and approach in the quite well-known Change4Life preventive programme in the UK, which mainly works through ‘proper’ information distribution, too.

3. This was part of broader research project financed by the German Ministry of Education and Research (BMBF Project Number: 01GWS5051). The analysis on ‘metabolic syndrome’ was directed by M. Döring and R. Kollek (BIOGUM, Hamburg) and the expert interviews were
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4. It is quite significant that many expensive, colourfully printed, and professionally designed materials are used to advertise the state-financed prevention programme ‘In Form’. Also a series of smaller-scale prevention projects are much advertised in order to attract further and/or long-term funding.

5. Child day-care in Germany starts from the age of six months. Kindergarten usually runs from three to six years and links to primary school. There exists a strong East/West difference in day-care infrastructure, with the former East offering a much better network of early infancy settings.

6. This understanding has already been situated, deconstructed and criticised by sociologists of childhood and critical psychologists (Morss, 1990; Holzkamp, 1993; Burman, 1994; James et al., 1998). What interests me here is not the psychological knowledge as such, but the merging of biomedical and psychological knowledge in everyday educational practices.

7. A situated overview and analysis of all the various understandings of children and childhood in Western theory and practice is offered by Allison James, Chris Jenks, and Alan Prout in their book Theorizing Childhood (1998).

8. Here again one can find parallels to the understanding of the ‘soldier body’ as analysed by Annemarie Mol in her The Logic of Care, see also footnote 7.

9. I would like to thank Nancy Guerra for her kind cooperation in sending me the editorial and all relevant information about this special issue early enough so that I could use it for my analysis.

10. All citations come from the call for manuscripts for a special section on ‘Raising Healthy Children: Translating Child Development Research into Practice’ for Child Development, sent per email to the members of the Society for Research on Child Development on 22 February 2008.

11. See: http://www.v-r.de/de/zeitschriften/500057/444/, the American Journal of Developmental Science has been published since 1998.

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