MONTESSORI RESEARCH EUROPE (MO.R.E.)

(c/o Prof. Dr. Harald Ludwig, Montessori Centre of the University of Muenster, Germany,
e-mail: ludwigh@uni-muenster.de; Website: www.uni-muenster.de/Montessorizentrum)

MONTESSORI RESEARCH & MORE
NEWSLETTER 2-2008 (DECEMBER)

Dear members and friends of MORE (MO.R.E.),
Now we are at last sending you the second issue 2008 (!) of our NEWSLETTER Montessori Research & More. We want to apologize for the delay due to fairly long-term illnesses of the persons involved in composing the Newsletter in 2008.

As MORE has not yet an own website, you preliminarily have to look at the homepage of the Montessori Centre of the University of Muenster (www.uni-muenster.de/Montessorizentrum or http://egora.uni-muenster.de/ew/mz), if you want to find the newsletters of MORE.

In 2009 the Newsletter MONTESSORI RESEARCH & MORE will be in charge of other members of MORE, perhaps in charge of the Montessori team at the University of Stockholm or in charge of the Montessori Research Centre of Roma Tre University (Italy). But this has not been decided for sure, yet.

NEWSLETTER 2-2008 contains the following parts:

1. Presentation of new members of MORE (biographical note; contact; selected publications) (Continuation of the presentation in Newsletter 1-2008)

2. A report on the Montessori Congress of Montessori Europe at Oxford in 2008 by Liene Hendriksen (Teacher College of Hengelo, The Netherlands)

3. Introduction to an international project: *Maria Montessori (1870-1952) – Education for Centuries* (by Prof. Dr. habil. Ryszard Kucha, Maria Curie-Sklodowska University Lublin, Poland)

4. Reports on recent empirical research on Montessori education, especially in Germany:

> 4.1 Montessori Education and Empirical Research – Lecture given at the Congress of the German Society for Educational Science (DGfE) in Dresden on 18th March 2008 (by Harald Ludwig, University of Muenster, Germany)

4.2 Furthering Creativity and Montessori Education – a Study on Children at Preschool Age (by Sung-Hui Kim, Korea, University of Muenster, summary of a dissertation)

4.3 Empirical studies on Montessori Education in Germany - an overview (composed by Harald Ludwig, Germany)

5. Some additional news:
   5.1 Montessori Summer Seminar in Hengelo, Muenster, Amsterdam (by Liene Hendriksen, the Netherlands)
   5.2 A short Information on the Swedish Montessori Research Network
   5.3 Contents of the Montessori magazine COMMUNICATIONS (ed. by the A.M.I., Amsterdam) 2-2008

If you wish to join the network MORE, please, contact Harald Ludwig, Muenster University: ludwigh@uni-muenster.de or haraldludwig@hotmail.com (website: http://egora.uni-muenster.de/ew/mz) or Eva Maria Ahlquist, Teacher College of Stockholm: eva-maria.Ahlquist@did.su.se.

Membership of the network does not come with a membership fee in money, but everybody who wants to join, should be prepared to occasionally report on their own Montessori research or the research of others.

*We plan our **2009 informal meeting** in connection with the Xth MONTESSORI EUROPE CONGRESS, which is organized by MONTESSORI EUROPE from **16th to 18th October 2009** in Cracow, Poland. Its main topic will be "Every Child is Special – Montessori and Inclusion: Chances for All Individuals". For more information visit the website of Montessori Europe:* www.montessori-europe.com *If you plan to participate in the meeting, please inform Prof. Dr. Harald Ludwig, University of Muenster, Germany:* ludwigh@uni-muenster.de *or* haraldludwig@hotmail.com*. If there are enough interested members of our network, we will try to organize the informal meeting in Cracow.*

We hope that you will enjoy this newsletter. On behalf of the MORE group with kindest regards

Harald Ludwig

1. Presentation of new members of MORE (biographical note; contact; selected publications)

Continuation of the presentation in our newsletter 1-2008

GERMANY

ECKERT, Ela (*1947 in Delmenhorst):
She studied to become a teacher in Oldenburg and Uppsala/ Sweden. Since 1976, she is working as a teacher in Sweden. In 1988, she received her Montessori diploma. From 1990 onwards, she was decisively involved in creating a Montessori school for children at the age of 6-15 in Uppsala. Since 1990, she has a teaching assignment for Montessori Education at the University of Oldenburg. There she did her doctorate in "Maria und Mario Montessoris Kosmische Erziehung – Vision und Konkretion" [Maria and Mario Montessori's Cosmic Education – Vision and Concretion]. She is currently working as a lecturer in Montessori courses. Lectures and publications in Germany and abroad, especially on 'Cosmic Education' and 'Erdkinderplan'. Co-editor of the German Montessori magazine DAS KIND [The Child]. Currently she is a consultant at a Montessori School near Oldenburg which is extending its work into an Erdkinder programme.

Contact: ela.eckert@uni-oldenburg.de und ela.eckert@t-online.de

Selected publications (referring to Montessori education):

Eckert, Ela: Maria und Mario Montessoris Kosmische Erziehung – Vision und Konkretion, Reihe: Impulse der Reformpaedagogik [Maria and Mario Montessori's Cosmic Education-Vision and Concretion, series: Impulses of New Education], ed.: H. Ludwig, nr. 15, 2nd edition, Berlin/ Muenster 2007 (1st edition. Bad Heilbrunn 2001)
Eckert, Ela: Kosmische Erziehung – Perspektiven fuer die Zukunft, in: DAS KIND 2003 [Cosmic Education – perspectives for the future, in: The Child 2003], nr .34, p .38-55.
Eckert, Ela: Concretizing Cosmic Education in India: A Montessori Historical Account, in: NAMTA Journal 2005, nr.2, p.195-225.
Eckert, Ela: Montessori Education in Exiled Tibetan Children's Villages, in: COMMUNICATIONS (ed. by A.M.I.) 2/2007, p.60-75.
Eckert, Ela/ Waldschmidt, Ingeborg (eds.): Kosmische Erzählungen in der Montessori-Pädagogik, Reihe: Impulse der Reformpädagogik [Cosmic Tales in Montessori Education, series: Impulses of Montessori Education], ed. by H. Ludwig, nr .14, 2nd ed., Berlin/ Muenster 2007.

MEISTERJAHN-KNEBEL, Gudula (*1953):
Dr.phil (=Ph.D.), she studied German, educational studies and philosophy in Bonn and Muenster; headmaster of the grammar school Schloss Hagerhof, Bad

Honnef; lecturer on theory in Montessori courses of the Montessori-Vereinigung Sitz Aachen (Montessori Association, situated in Aachen); president of Montessori Europe, member of the European Forum for Freedom in Education (EFFE); special interest: building up and extending Montessori work in secondary schools ("Erfahrungsschule des sozialen Lebens" [School of Experience in Social Life]).

Contact: meisterjahn@hagerhof.de

Selected Publications (referring to Montessori Education):

Meisterjahn-Knebel, Gudula: Montessori-Paedagogik und Bildungsreform im Schulwesen der Sekundarstufe – Dargestellt am Beispiel der Bischoeflichen Maria-Montessori-Gesamtschule Krefeld [Montessori Education and Educational Reform of Secondary Schools – Shown at the Example of the Episcopal Maria Montessori Comprehensive School in Krefeld], Frankfurt a.M. 1995 (Diss. University of Muenster 1994).
Meisterjahn-Knebel: Gudula: Schule und Jugend, Perspektiven in einer Zeit des Umbruchs [School and Young People, Perspectives in a Time of Change], in: MONTESSORI 40 (2002), p.79-88 and p.130-140.
Meisterjahn-Knebel, Gudula: Montessori-Paedagogik in der weiterfuehrenden Schule – Der ‚Erdkinderplan' in der Praxis [Montessori Education in Secondary Schools – The ‚Erdkinderplan' in practice], Freiburg 2003.
Meisterjahn-Knebel, Gudula: „Die Erfahrungsschule des sozialen Lebens" – Gymnasium Schloss Hagerhof, Bad Honnef: Ein Beispiel fuer die Veraenderung eines traditionellen Gymnasiums [The School of Experience in Social Life" – Grammar School Schloss Hagerhof, Bad Honnef: an Example of Changing a Traditional Grammar School] , in: Ludwig, et al. (ed.): Sozialerziehung in der Montessori-Paedagogik, Reihe: Impulse der Reformpaedagogik Bd.12 [Social Education in Montessori Education, series: Impulses of New Education nr. 12], Muenster 2005, p.195-231.
Meisterjahn-Knebel, Gudula: Erfahrungsschule des sozialen Lebens – Unverzichtbare Kriterien einer Montessori-Sekundarschule [School of Experience in Social Life – Essential Criteria of a Montessori Secondary School], in: DAS KIND [The Child] 42/2007, p. 91-105.

RAAPKE, Hans-Dietrich (*1929 in Hannover):
Dr.phil. (=Ph.D.), professor emeritus for educational studies with the main emphasis on adult education at The University of Oldenburg. Member of committee of lecturers of the Montessori Association in the field of "theory"; author of many publications on Montessori Education.

Contact: dietrich.raapke@uni-oldenburg.de

Selected Publications (referring to Montessori Education):

Raapke, Hans-Joachim: Verwandte Seelen. Maria Montessori und Astrid Lindgren [Related Souls. Maria Montessoria and Astrid Lindgren], in: DAS KIND [The Child] 1993, 1st half-year, p. 55 ff.
Raapke, Hans-Joachim: „Montessori aktuell – die Pädagogik einer Kinderärztin" ["Montessori today – the Educational Theory of a paediatrician"], Oldenburg 1997.

Raapke, Hans Joachim: Maria Montessoris Friedenserziehung [Maria Montessori's Education of Peace], in: Ludwig, H./ Fischer, R./ Heitkämper, P. (eds.): Erziehung zum Frieden für Eine Welt – Der Beitrag der Montessori-Paedagogik, Reihe: Impulse der Reformpaedagogik [Education for the Peace of One World – the Contribution of Montessori Education, series: Impulses of New Education], ed. by H. Ludwig, nr. 3, Muenster 2000, p.136-153.
Raapke, Hans-Joachim: Montessori heute – Eine moderne Paedagogik fuer Familie, Kindergarten und Schule [Montessori Today – a Modern Education for Family, Nursery and School], Reinbek close to Hamburg 2001, 222 pages.

UNITED KINGDOM

CLARKSON, John (*):
I am the registrar of the Kent &Sussex Montessori (training) Centre and a visiting lecturer in Montessori Education at the University of Greenwich (in London). I wrote the article 'Looking at Recent Educational Research' in the latest Montessori Europe e-newsletter and am a regular contributor to Montessori International magazines.

Contact: jdbclarkson@hotmail.com

2. A report on the Montessori Congress of Montessori Europe at Oxford in 2008 by Liene Hendriksen (Hengelo, The Netherlands)

The Montessori Europe Congress, Oxford U.K., 10-12 October 2008 - *A short report about a wonderful congress*.

Liene Hendriksen

After your arrival at London Heathrow Airport, a bus takes you through the stunning English countryside to the medieval city of Oxford. This trip takes approximately one hour and even within this short period of time it brings you in a mood of introspection. The observation starts right here, even before your arrival at the congress hall.

The city of Oxford feels like a movie; more specifically, a movie in which you are the participant. Montessori's from all over Europe (and even world wide) were united in this city, all playing their own part in the same movie. Every single person was overwhelmed by moments of observations, not just once, but the whole day long, from beginning to end.

Travelling by bus, we were directed to several schools with Montessori Education. I would like to give an example that made an impression on me; The Montessori farmer school. A remarkable thing was that children from around the age of two were sitting in the same classroom as older children. Inside the room was a low hedge that created a small space, the place for the youngest ones. If a 2 - year - old wanted leave his space, he could do so, he could crawl or walk into the larger classroom whenever he wanted. However, if an older one wanted to come into the space of the youngest ones he had to ask.

Just an old farm house and enthusiastic people are all the ingredients they needed to set up a school with a specific mission. Mix in a bit of creativity to make the whole a very special place. So instead of a gym they took the floor of the whole barn and put a gym floor on it. Children have a roof, but are always in the open air.

The opening ceremony was also typically English: children from the school sang their wonderful songs. When they went to the toilet happily, they even shouted sometimes.

By way of the speakers **observation** was brought to us again. I mention just a few of the speakers, and will focus on some aspects of the lectures that were for me personally significant.

Sally Goddard-Blythe talked about the *"Identifying and Observing Physical "Readiness" for Learning. - The significance of primitive and postural reflexes as reflections of central nervous system maturity."*

She talked about the importance of movement, especially for the development of the brain. She introduced the A-B-C-D-E observation. The first 3 are the observation items. If the child has:
A attention
B balance
C coordination
then you can see:
D development
And the child will be open for
E education.
Children start learning with their body, later followed by learning with the brain. So in our whole education we must keep the focus on the knowledge and skills of the body, and observe very well the motor development.

Catherine McTamaney is the author of the Tao of Montessori, her lecture was titled: *"A Lens-Inward: An Introduction to the Importance of Self-Observation for Montessori Teachers"*

What Catherine did was uniting a text of a writer, philosopher or other great person with a reflection and a text of Maria Montessori. In all cases she focused on the self.

When a lot of different people look at the same child, they all have a different advice. It is not that one person observes better than another one; everyone has a different point of view. So when you observe a child, you are looking for patterns: what is he doing repeatedly? And on the other hand, what makes the child unique? When you are doing self observation, you look for the same: what are my patterns, what am I doing, or thinking over and over again? And on the other hand: what makes me unique? If you have to change something, change the patterns, or ask yourself questions about the why and the who. The part of uniqueness is yours, when you start working with self observation you will become conscious of that unique part. So, self observation gives you space to discover secrets, the ones of the child and the ones of yourself.

Lynne Lawrence, the general secretary of A.M.I. spoke about *"Observation: the Cornerstone of Montessori Education"*

The presentation by Lynne was the most typical 'Montessorian' one. Her presentation was filled with photos of children, all around the world. The theory of Maria Montessori of the importance of observation must be connected to ourselves. If you look at a child in a proper, scientific way, objectively and with an open mind, you not only notice more about the child, you also notice more about yourself. But Lynne also talked about the other way: we observe the child, and the child observes us. We must be very good practitioners of life, because the quality of our life is showing the way to the child. From birth on, he starts to become 'human', and this travelling never stops, we are still becoming more and more human. Not only by learning, or acting, but also by observing, and by doing the things well, and doing the good things. When children are together in a Montessori school, they have to be able to explore and to communicate. In that way they can find their way to grow up, to develop and to keep us alert to do the same, because we are all travellers.

Of course, there were more presentations, a lot of workshops, wonderful materials, many songs of children, a dinner, and contacts. It seems that the Montessori Europe Congress becomes a yearly traditional place to show new scientific research, to share the Montessori vision together, to be at a wonderful place together and to have time for reflection.

We had planned a meeting with the MORE members: But this meeting was postponed. The importance of MORE was introduced to the participants of the congress by a short note by the president Dr. Gudula Meisterjahn-Knebel. There are more possibilities to meet together:

- 23-29 August 2009: The Montessori Summer Seminar: Montessori and Brain based Education, at Hengelo, Muenster and Amsterdam (for more information, please, send an e-mail to internationaloffice@edith.nl)

- 16-18 October 2009, next congress of Montessori Europe, at Cracow, Poland

I will end this report with some words by Montessori herself:
'There is a part of the child's soul that has always been unknown but which must be known. With a spirit of sacrifice and enthusiasm we must go in search, like those who travel foreign lands and tear up mountains in their search for hidden gold'.

Liene J.L.N. Hendriksen, M.
Coordinator Montessori teacher training,
Hogeschool Edith Stein, Hengelo
The Netherlands
hendriksen@edith.nl

3. Introduction to an international project: *Maria Montessori (1870-1952) – Education for Centuries*

(by Prof. Dr. habil. Ryszard Kucha, Maria Curie-Sklodowska University Lublin, Poland)

Everyone who is interested to join the following research project should write to Prof. Dr. Ryszard KUCHA: rysiek441@wp.pl

Preface:

The idea of this project was created for the first time some years ago, in 2001. The History of Education and Comparative Education Department of the Maria Curie - Sklodowska University in Lublin had discussed this idea many times and - finally- we decided to prepare the first main ideas in two important ways: we need to ask many international authors from different countries and continents

about participation in this project. The final result of this first way should be a book prepared and printed in English. The book will be printed probably by Rzeszów University and no later than in 2010.

Secondly, we need to organize an international conference in Rzeszów (a very nice place and a city with an airport).This conference will be held by the Faculty of Pedagogy and Art Education of the Rzeszów State University in 2009, probably in late spring or in autumn (September). By then, all presentations should be included in the final report, which will be published in English.

You know by now that it is very important to us to have as many authors as possible who participate in the conference and who work as the co-authors of the book. Maria Montessori still is a great educationist and pedagogical thinker well known all over the world. We would like to show all most important ideas of her pedagogy and her methods of teaching by the interpretations of many different authors from different countries. In our opinion she is still very important for future education in the global village for the coming centuries.

GENERAL IDEA OF THE PROJECT
"MARIA MONTESSORI (1870 - 1952) - EDUCATION FOR CENTURIES."

EDITOR - IN-CHIEF RYSZARD KUCHA

Volume 1:

Preface

Chapter One
FROM LITTLE CHILD TO THE GREAT EDUCATOR
1. Parents and Childhood: family, neighbourhood and material status
2. Maria is going to school: first educational experiences
3. Secondary education and own way to the independence thinking
4. Maria Montessori as the first female student of medicine in Italy and the first female Italian doctor
5. Learning theory and practice experience: first steps on the way to pedagogical knowledge
6. First steps on the way to feminism

Chapter Two
BETWEEN MEDICINE SPECIALIST AND PEDAGOGICAL THINKER

Volume Two:

MARIA MONTESSORI'S IDEAS IN THE EDUCATIONAL PRACTICE EXPERIENCES AND ACTIVITIES OF DIFFERENT COUNTRIES

Preface

Chapter One
THEORY AND PRACTICE OF MONTESSORI EDUCATION IN EUROPE

Chapter Two
THEORY AND PRACTICE OF MONTESSORI EDUCATION IN ASIA

Chapter Three
THEORY AND PRACTICE OF MONTESSORI EDUCATION ON THE AMERICAN CONTINENT

Chapter Four
THEORY AND PRACTICE OF MONTESSORI EDUCATION IN AFRICAN COUNTRIES

Chapter Five
THEORY AND PRACTICE OF MONTESSORI EDUCATION IN AUSTRALIA AND NEW ZEALAND

FINAL REMARKS

NOTES ABOUT AUTHORS AND PARTICIPANTS OF THE PROJECT

If you have some questions, opinions etc., please, do not hesitate to write to Prof. Kucha immediately.

4. Reports on recent empirical research on Montessori education, especially in Germany

4.1 Montessori Education and Empirical Research

Lecture given at the Congress of the German Society for Educational Science (DGfE) in Dresden on 18th March 2008

by Harald Ludwig (University of Muenster)

1. Maria Montessori and empirical research

In her early years, Montessori concerned herself very much with *the measuring empirical research* under the influence of the natural-scientific positivistic zeitgeist of that time.
In Montessori's early lectures on "educational anthropology", which were, however, only published in 1910, this orientation emerges particularly strongly.[1] Anthropometric examination (measurements of the head circumference, the size of the thorax and the like) is very important to Dr. Montessori (MD), who is still strongly influenced by her medical background at that time. Yet, less well-known is that Montessori carried out **empirical studies into modern socio-scientific issues in the domain of school** within this context. An important study, for example, which has not been translated into German, yet and which is quite difficult to approach, is a scientific paper. It was published in 1904 under the title "The influence of the family background on the intellectual level of pupils – research on educational hygiene and anthropology regarding education."[2]
In these early studies, on the one hand, Montessori's still very strong **medical natural-scientific orientation** becomes clear, but on the other hand **a socio-scientific orientation** emerges, which considers a person's career as also dependant on social conditions, which he is exposed to from birth without his hand in the matter. Montessori's quest for **more justice in education –** also by way of an improved teacher training – should be based upon such studies into school reality.
Later on, she more and more came to the approach to research of an *understanding observation of children*. She was concerned with phenomena in the educational field and their interpretation. That does not mean, however, that Montessori thought of the approach to her early research and its results as totally wrong. **Measuring empirical research** remains an **important source of insight** for her. Yet, it is not sufficient enough and has to be replenished with other kinds of human gain in knowledge. Especially understanding observation, but also philosophical reflection belongs with it, as becomes clear in her ideas on "Cosmic Education".[3]

2. Empirical research on new educational concepts

[1] Cp. Montessori, Maria: Antropologia pedagogica, Milano 1910.
[2] Montessori, Maria: Influenza delle condizioni di famiglia sul livello intellettuale degli scolari. Ricerche d'Igiene e Antropologia Pedagogiche in rapporto all'Educazione, in: Rivista di Filosofia e Scienze affine VI (1904), 2, n. 3-4 (sett./ott.), p. 234-284.
[3] Cp. Maria Montessori's lectures on Cosmic Education at the London Vacation Course in 1935/36. These important six lectures are for the first time published in COMMUNICATIONS (ed. by the A.M.I., Amsterdam) 1/2007 to 2/2009 (at present four of them are published, the two others will follow in 2009).

Empirical studies into new educational school- and education concepts have a long tradition. It would be a mistake to think that such studies only resulted from the empirical educational and teaching research dominant in German educational science in recent years. Of course, older studies cannot do justice to today's standards of empirical research altogether. Yet, one should not simply ignore the gain of knowledge from these studies. Besides, looking at it from a scientific theoretical aspect, they can serve as critical corrective of the possible one-sidedness of today's research methods.

I want to point out that progressive educationalists as Dewey, Montessori, Petersen, Freinet et al. were working at an empirical control of their concepts – today called evaluation - themselves. Petersen, for example, designed and practiced an autonomous empirical research concept with his "educational research of facts", about which no one less than Dietrich Benner, despite some points of criticism, once said, this "attempt of a praxeological empiricism suggested and led by P. is forward-looking."[4] Even Janusz Korczak's "narrative education" is not the result of poetic ideas, but based upon conscientious, also written documented observations of children and their reflection. In this respect, elements of empirical research are not strange to new cultures of education, but belong to the prevailing educational way of thinking as a genuine part.

There are very many empirical studies on Montessori education of different quality available – especially if one includes the international field. One can possibly get a brief impression from an overview of empirical research literature only referring to German speaking countries, which I prepared for today's lecture. However, this overview does not claim to be exhaustive.[5]

I only want to point to the possibility, yet, that whoever is looking for a summarized evaluation of older, yet not outdated empirical studies on Montessori Education, should have a look at the contribution by Reinhard Fischer in the volume "Montessori-Paedagogik in der Diskussion" [Montessori Education under Discussion] which was published in 1999.[6].

In recent years, the aspect of pupils' *performance* has also come to the fore of empirical research, not least as a result of international studies. Within this context, different central comparative tests have been carried out by the ministers of education of many states of the Federal Republic of Germany on a regular basis. One example is the central comparative test "VERA 2004", which different states carried out among pupils from fourth grade. The results of this central comparative test, which was criticized in some respects, were analyzed by a research group led by Dr. Wilhelm Suffenplan (retired lecturer of the

[4] Benner, Dietrich: Hauptströmungen der Erziehungswissenschaft [Main Tendencies in Educational Science], .2nd revised ed., Munich 1978, p. 170.

[5] See the list in part 5 of this newsletter.

[6] Fischer, Reinhard: Empirische Ergebnisse der Montessori-Pädagogik [Empirical Results of Montessori Education], in: Ludwig, Harald (ed.): Montessori-Paedagogik in der Diskussion – Aktuelle Forschungen und internationale Entwicklungen [Montessori Education under Discussion – Current Research and International Developments], Freiburg: Herder 1999, p. 173-218.

Cologne University) and supported by the Montessori centre of Muenster University with regard to the results at regular primary schools,[7] on the one hand, and Montessori primary schools, on the other hand, for the state North Rhine-Westphalia. I want to go into this in more detail in the following.[8]

3. The results of an analysis of central comparative tests among pupils in fourth grade of primary schools in North Rhine-Westphalia in Germany in 2004 ("VERA 2004")

In 2004, in seven states, the **skill level of pupils in fourth grade** was tested in the subject areas of *German* and *mathematics*. Montessori schools were included in the study. North Rhine-Westphalia was especially good for a comparative evaluation because they have a high number of Montessori schools, most of which are not private schools. Most of them are schools of the regular state school system which, however, work on this special educational concept and which are partially situated in the more deprived areas of big cities. The comparison includes 663 pupils from **12 Montessori primary schools in North Rhine-Westphalia.**

The comparative tests covered ***seven*** **fields within the subjects.** In the field of *mathematics* it was arithmetic, geometry and applied calculation. In the field of *German* skills in reading, writing (essays), spelling and grammar. In order to better compare the skills of pupils, ***four*** **different groups** were formed according to the conditions of learning. These groups were also referred to as "context groups". Criteria to decide whether a group was considered one with *good* conditions or with *bad* conditions for learning were among other things the size of the class, the number of children who were non-native speakers of German, the number of children from families in difficult living conditions, the location of the school in a social trouble hotspot. In general, the consideration of *seven* areas of the subjects and *four* context groups resulted into ***28 categories that had to be compared***.

The **outcome** was that the pupils in the fourth grade of **Montessori schools in North Rhine-Westphalia performed much better** than pupils in traditional schools. The Montessori pupils displayed far better skills in the field of mathematics.

Suffenplan summarizes: *"Almost half of the Montessori groups show a higher level of performance, eight in mathematics, five in German; likewise almost half of them tend to show a higher level of performance – three in mathematics, two in German – or show the same level – seven in German, one in mathematics -; only in two comparative cases – in German – clearly lower levels of the Montessori groups can be seen"* (p. 51). "*Tending* to show a higher level" refers

[7] In Germany "Primary Schools" are schools for children from 6 to 10 years.

[8] Suffenplan, Wilhelm: Die Lernstandsergebnisse von VERA 2004 bei Montessori-Schulen und Montessori-Schulzweigen Nordrhein-Westfalens [The Results of the Central Comparative Test VERA 2004 in Montessori Schools of North Rhine-Westphalia], in: MONTESSORI 44 (2006), nr. 1/2, p. 18-60.

to differences that are statistically not relevant, it is true, but show a measurable difference.
The **two comparative cases** in which **Montessori children** scored below pupils from traditional schools referred to *writing skills* (essays) and *spelling*. It is remarkable, however, that these *lower* skill levels were only found in the Montessori learning groups with *good* conditions. In the **Montessori groups with *bad* learning conditions,** however, *equal or better results* were achieved in the fields writing (essays) in comparison with the pupils from regular schools. This can be interpreted as a **special effect of furthering of Montessori education** in the field of language **for children from difficult social backgrounds.**
With regard to pupils' performances I want to point to another study, which is about the long-term effect of Montessori education. An American study tried to answer this question.

4. The Milwaukee study (2005)[9]

In this American study performance at school of two groups of pupils who successfully finished school at the secondary level of the Milwaukee public schools between 1997 and 2001 are compared with each other. The first group included pupils who had spent their pre- and primary school years until the fifth grade in Montessori schools. The second group included pupils from the same regular secondary schools who, however, had not been exposed to Montessori Education before. The two groups were chosen very thoroughly according to the following categories: gender, ethnicity, socio economic status and belonging to a certain school. Since the groups could not be formed by chance, an absolute comparison is, however, not possible. For example, possible influences of the parents' house can not be controlled. In the US, common testing procedures for pupils' performances were used.
This study showed that pupils who were educated in a Montessori institution during their pre- and primary school years later have **advantages in performance at secondary schools of the regular system,** too, especially in the field of natural sciences/mathematics, over those pupils of the same school who have not been educated in one of the Montessori institutions before.
The study was carried out by a famous research department by order of the American Association Montessori Internationale (AMI/USA).[10]

[9] Kathryn Rindskopf Dohrmann: Outcomes for Students in a Montessori Program – a Longitudinal Study of the Experience in the Milwaukee Public Schools, www.montessori-ami.org; Cp. Schülerleistungen in einem Montessori-Programm, in: MONTESSORI 44 (2006), no. 1-2, p. 61-68.
[10] A summarized presentation of the results by Kathryn Rindskopf Dohrmann in German can be found in the journal "MONTESSORI" 44 (2006), nr. 1/2, p. 61-68. The original English text can be found on the homepage of the Association Montessori Internationale (AMI) (www.montessori-ami.org under "Research").

5. Research results on interdisciplinary performances

One should not only conceive the term **"pupils' performances"** as performances in subjects of central fields as languages, mathematics and natural sciences, but also *interdisciplinary performances* such as attitude to work and motivation, creativity and social behavior. Results of solid older empirical studies with regard to Montessori Education for these fields are already available,[11] which can be confirmed by new ones.
I want to point to the results of the American comparative study by Angeline Lillard and Nicole Else-Quest, which were published in 2006 in the world famous journal "Science".[12] Since this study is very famous, I will not look into this study in particular. It shows positive effects of Montessori Education both in preschool and in primary school education.
The two scientists looked at 30 five-year-old pupils from Montessori children's houses and 29 twelve-year-old Montessori pupils from Milwaukee (Wisconsin). Almost the same number of children who had been enrolled at a Montessori school, but had not got a placement by lot formed a control group. This ***choice by lot*** led to a better comparability of both groups looked at.

Results for the five-year-olds
The **five-years-old** children from the Montessori children's house had a similarly extended vocabulary as their peers from the control group, but the Montessori children were clearly better at simple reading and arithmetic exercises. Interestingly enough, one could find clear differences in *social behavior* in favour of the Montessori children.

Results for the twelve-year-olds
The Montessori pupils' advance in reading and arithmetic disappeared **at the age of twelve.** The pupils from the research group showed similar performances as pupils from different schools. However, the Montessori pupils wrote *more creative essays* and used *more complex syntax*. The **higher social competence** of Montessori pupils can also be found among the twelve-year-olds.

6. Results of recent empirical studies on Montessori Education in Germany

Eventually, I want to draw attention to three empirical studies from recent years which emerged at the Montessori centre in Muenster.

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[11] FÄHMEL, Ingrid: Zur Struktur schulischen Unterrichts nach Maria Montessori [On the Structure of Lessons according to Maria Montessori], Frankfurt/Bern 1981 (Diss. PH Westfalen-Lippe 1979); FISCHER, Reinhard: Lernen im non-direktiven Unterricht [Learning in non-directed Lessons], Frankfurt/Bern 1982 (Diss. Osnabrueck University 1979).
[12] LILLARD, Angeline G./ELSE-QUEST, Nicole: Evaluating Montessori Education, in: SCIENCE 313, 29th September 2006, p. 1893-1894.

a. Esther Grindel: Lernprozesse hochbegabter Kinder in der Freiarbeit der Montessori-Paedagogik – eine empirische Analyse auf der Basis von Einzelfallstudien in Montessori-Grundschulen [Learning Processes of Highly Gifted Children in the Free Activity of Montessori Education – an Empirical Analysis based on One Case Studies in Montessori Primary Schools], series: Impulse der Reformpaedagogik [Impulses of New Education], edited by H. Ludwig, vol. 17, Berlin/Muenster 2007.

The author carries out a **qualitative empirical study.** On the basis of *four descriptive case studies of highly gifted pupils*, who attended Montessori primary schools, typical learning structures of highly gifted children in Montessori free activity are looked at. They are the basis in order to show opportunities and limitations of highly gifted pupils in Montessori free activity. As instruments of data collection the author uses participating observation and interviews structured according to guidelines.
The result of the thoroughly collected and evaluated data, which was later summarized in hypotheses, shows that **Montessori Education predominantly** offers **positive possibilities for furthering highly gifted children** in all aspects. On the one hand, it includes *acceleration elements*. That is it offers learning in a faster speed adapted to their needs to specially gifted children. On the other hand, Montessori free activity also includes *enrichment elements*, which means that it offers additional and enhancing learning possibilities to these children. The *danger of under-challenging,* which is widespread in traditional classes, and its negative consequences, can be avoided to a large extent. However, this is also dependant on the adequate organization of Montessori free activity by the teaching person. The author makes critical suggestions for a further development.

b. Nicole Hanewinkel: Handlungsorientiertes Lernen mit dem Bruchrechenmaterial Maria Montessoris – Eine Analyse von Arbeitsweisen und mathematischen Verstehensprozessen bei Grundschulkindern [Action-oriented Learning with Maria Montessori's Material on Fractional Arithmetic – an Analysis of Working Procedures and Mathematical Processes of Understanding among Primary School Pupils, series: Impulse der Reformpaedagogik [Impulses of New Education], edited by H. Ludwig, vol. 18, Berlin/Muenster 2007.

The author's interest of research is not primarily the self activity, which is typical of Montessori education and its didactical possibilities for the subject mathematics. Rather, she emphasizes that the aim of her study is to gain an insight into the microcosm of **children's learning and teaching processes when they are working with the material on fractional arithmetic** and to present it. As methodological approach Dr. Hanewinkel chooses the *interpretative teaching research*. Important to her is an exact analysis of the

cognitive processes of the seven children of different age who she observed when they were working with Montessori's material on fractional arithmetic. In order to support the data collection video and audio links are made. On this basis the young researcher is able to gain deeper insight into children's processes of understanding when they deal with Montessori's material on fractional arithmetic. This refers, for example, to the ideas of fractions which these children develop and the possibilities to arrive at an autonomous construction of mathematical rules ("mathematizing") when dealing with this material. The gained insights are both interesting for Montessori Education and for mathematical education and can show ways how pupils gain better access to the field of fractional arithmetic, which is considered exceptionally hard.

c. Sung-Hui Kim: Kreativitaetsfoerderung und Montessori-Paedagogik - Untersuchungen bei Kindern im Vorschulalter [Furthering of Creativity and Montessori Education - Research with Children at Preschool Age], dissertation Muenster University 2007.

This empirical study by a Korean educationalist was accepted as dissertation at Muenster University in 2007. Meanwhile it was published as a book.[13] The author is concerned with the difficult term "creativity" and different theories of creativity in a long theoretical part.
Mrs. Kim makes connections with the "pragmatic theory of science", and especially to the ground-breaking research by the American psychologist Guilford. Creativity is to be understood as "divergent thinking and problem-solving capacity, which is connected with each other, when one deals with the world". In addition, one's action in everyday situations is explicitly included in this idea. Rightly, Dr. Kim concludes that the aspect of innovation is a necessary, although not a sufficient condition for creativity, but is in need of a completion by way of a "realistic adequate meaningfulness". "The new solution has to refer to problems of individual and societal kind in a meaningful way".
Within the context of the research by the young Korean especially important is the **comparative empirical research on creativity among preschoolers** by way of the TSD-Z test procedure, developed by Urban, a German psychologist. "TSD-Z" means "**T**est zum **S**choepferischen **D**enken – **Z**eichnerisch" ("Test for Creative Thinking – Drawing Production"). The author has modified the test by including a colourful design of the children's drawings. The sample consisted of 326 children, which included 12 Montessori children's houses and 15 regular nurseries from three different cities. The author is aware of the fact that the results of her empirical research cannot be generalized to an absolute degree, because it was not possible to control all the possible influences – like the

[13] KIM, Sung-Hui: *Kreativitaetsfoerderung und Montessori-Paedagogik -Untersuchungen bei Kindern im Vorschulalter [Furthering of Creativity and Montessori Education - Research with Children at Preschool Age] Reihe: Impulse der Reformpaedagogik Bd.21 (Series: Impulses of New Education, vol. 21), Berlin/Muenster 2008.Cp the summary of the author in 3.2 below.*

influence of the parents' house – and to achieve full comparability. Thus, her results have to be interpreted with some caution.
All in all, positive outcomes for the children from the Montessori institutions can be found in all areas of the test. For example, this becomes very obvious for the category "transgression of limitations, independent of the figure", which contradicts the often heard criticism that children's creativity is suppressed in a Montessori environment as strict orders on the use of the material have to be followed. Besides, "discipline" which is supported in Montessori Education, is obviously no hindrance to the development of creativity, but rather has a lot of advantages. The author can refer to an accordance of her results with other studies. Yet, it is important to adequately handle the Montessori conception.

7. Outlook

Finally, I would like to emphasize that empirical research on Montessori Education confirms many positive aspects; moreover, it encourages to **further development of Montessori Education with a critical and constructive approach** considering our current level of knowledge. This is in accordance with Maria Montessori herself, who never stopped thinking about the development of her pedagogy and said at the end of her life: "It is not necessary that the whole work of research be accomplished. It is enough that the idea be understood and the work be taken in hand following its indications".[14]

Anyhow, one can still state today what Maria Montessori says in the preface to the fifth edition of her first book (1909), which came out in 1948:

"The times have changed, science has made great progress and so has our work, but our basic principles have only been confirmed, and also our conviction that humanity can only hope for a solution of its problems, the most urgent of which are those of peace and unity, by turning its attention and energies to the discovery of the child, and the development of the great potentialities of the human personality in course of construction."[15]

4.2 Furthering Creativity and Montessori Education – A Study on Children at Preschool Age

by Sung-Hui Kim (Korea)

Survey of the issue and the results

[14] Montessori, Maria: Kosmische Erziehung [Cosmic Education], Freiburg 1988, p. 43.
[15] Montessori, Maria: Die Entdeckung des Kindes [The Discovery of the Child], Freiburg 1980, p.2.

The study deals with the question whether Montessori Education furthers early childhood creativity – and if this is the case, how it is shown – or if it is not the case, whether it is inhibited. There are a number of pros for both hypotheses, which are mutually exclusive. The working hypothesis is put forward that the critics themselves act on the assumption of a limited idea of creativity and, therefore, miss the theoretical approach to Montessori's idea. Montessori is not interested in determining a natural-scientifically inspired, logical mathematical notion of creativity in contrast to a hermeneutically inspired one, which is exclusively put down to the musical subjects. Rather, she is interested in a hypothesis of a structural pattern of inventive action, which is formed during performances needed in everyday life. It develops dynamically and is expressed as "inventive action of the imagination" when one deals with everyday situations.

The basic issue is raised whether creativity has to be understood in a more general way than Montessori critics do, for instance, within the context of the widely discussed different theoretical approaches, which last until today. The study suggests a notion of creativity which is defined as a special *structural level of divergent thinking, feeling and acting*. If one defines creativity in this profound sense, which is dwelled upon in this study with regard to theories of creativity of American researchers and European scientists, but especially on the basis of the genetic psychology of education by Jean Piaget and eventually related to Montessori's idea of imagination, you have an acceptable position for empirical research. Then, the study tries to find out whether strong evidence can be found which shows that, in contrast to the common idea of Montessori Education, a positive correlation exists between the conception of Montessori Education and its potential to further creativity, when an empirically describable context is taken into account.

Thus, the study consists of a part which is scientifically theoretically oriented and one which is practical empirical. In the first part, the notion of creativity is defined, as Montessori understood it as "power of imagination", which then, however, especially in the second half of the twentieth century, was conceptualized again from different perspectives. Therefore, theoretical hypotheses are discussed with regard to the determination of what precisely the subject-matter of the educational controversial issue is. Thus, it is asked: what precisely can be understood by creativity as a result of different scientific definitions? In order to answer this question, detailed theoretical considerations are necessary. In this study this is carried out by way of three viewpoints which look at the issue of creativity in more detail.

First main focus: On the notion of creativity – a discussion of approaches which are oriented towards product, process, personality and environment in American

research. The result of these discussions is that creativity as divergent thinking creates a necessary moment of problem-solving ability to act.

Second main focus: developmental psychology of preschool age and the possibility of creativity within the context of Jean Piaget's approach. The result of the considerations under this title is that there is a pre-operational stadium in infantile development which comes with specific forms of perception and imagination. (Socio-morphic reshaping of the imagination of space, parts of animism and artificialism). Infantile egocentrism, which creates these structures, however, takes a turn, which is culturally significant, into a de-centred view of the world.

Third main focus: The pre-operational stadium and Montessori's inventive liberal idea of the child (creative personality as an aim of education). The results of these considerations are that Montessori's notion of the child with regard to the ability of liberal inventive action can be confirmed by insights of American research on creativity and continental research on developmental psychology.

In the first part of the theoretical considerations, I go to such lengths that the conceptual context of pragmatic theoretical considerations of American researchers is taken into account. Thus, the structural model of the intellect by J.P. Guilford is looked at, who drew on the notion of common sense, which came to the fore theoretically sometimes in a more and sometimes in a less obvious modified way. This action-theoretical viewpoint and the insight into the problem-solving structure of human action has, however, always come with a view on the process of internalization, which showed the construction of personality structures and which thus, became a focus of psychological theory formation. These were, in this study - not in every detail – discussed under the topic of approaches of creativity which are oriented towards personality. In order to determine the phenomenon of creativity, it is important to act on the assumption of a result of internalization of the individual participation in cooperative processes of action with the construction of an interior cognitive emotional world. This world is continually updated in everyday performance and is challenged when one has to cope with new situations. This result of internalization, the ability of the personality to act, which is created in processes of socialization, shows a structural construction, which can be theoretically determined as a general human ability to act. This is realized in social practice historically. The result is a continually varying formation of semantic matters, cultural models of interpretation and abilities. However, both, the internalized structures of problem-solving action and the cultural content-wisely coined pool of experience can be itemized phylogenetically and ontogenetically – and, thus, in the feature: innovation.

Therefore, in the second part of the theoretical considerations, the phylogenetic/ontogenetic attempts to determine by Piaget are taken into consideration. This general ability to act, which is formed in social performance, has an obvious osculation point in Piaget's process of decentralization. This leads to the construction of general human thought patterns, which can be reconstructed in their genetic graduation and correlated with the ontogenetic development of individual developmental processes. Against the background of these considerations a new view on Montessori's notion of creativity is opened. It correlates with the notion of creative problem-solving, which was developed by pragmatic philosophy and Piaget's considerations on the transitional phase from the preoperational to the operational way of thought. This leads to describing Montessori's concept as an *inventive action of imagination*. This theoretical basic notion is, then, looked at within the context of a particular phase from the process of socialization of infants. It deals with the change from a still *egocentrically deformed, uninhibited action of imagination* into a *liberal inventive* action. This is now possible with the structural level of logical thinking, which is rudimentarily achieved. This liberal inventive action is based upon a decentred structure of action, which brings assimilation and accommodation into balance, and, therefore, it can develop on the basis of a new world view.

If one, thus, refers Piaget's insights to Montessori's conception, it becomes clear that there is a topical correlation between both approaches. This phase – in the course of the fifth year of the child's life – is considered as especially obvious by Montessori as well. In Montessori as well as in Piaget the idea can be found that the new structural level of notional logical thinking is a necessary prerequisite for a now *demanding action of imagination*. Montessori does not command the model of the meshing of assimilation and accommodation, which can be described as a general process of decentralization, but her notion of *inventive inhibited action of imagination,* which was defined more precisely by her, is confirmed by Piaget's insight into the change from preoperational to operational thinking. She got aware of this change, even though she could not comprise it with Piaget's specification. Therefore, one can state against the background of the already mentioned scientific efforts that Montessori – with regard to American pragmatism and the connected research on creativity and with regard to continental efforts of research of developmental psychological issues – could reveal the newly formulated insights in her own way rudimentarily.

The considerations of these three subsections lead to the result that Montessori's notion of creativity is still up to date today against the background of the already mentioned theoretical efforts and can even be supported by them in some important respects. Montessori's notion of the infantile personality can be seen

in the active treatment of the world and other people and is determined by the potentially inventively coined and at the same time individually accentuated ability. Insofar, one can state that this insight coincides partially with the creative theoretical considerations on divergent thinking, as they were made on the American part. The approaches deal with an attempt to analyze and determine more precisely the general structure of action, which develops in everyday performance. The recourse to the cognitive theory of development by Piaget shows a developmentally logically significant change in the ability of infants to comprehend and act, which takes place during the preoperational period of thinking. It can prove that a process of decentralization takes place in order that the child is led onto the path of logical thinking in the course of socialisation. Piaget does not emphasize very much the change of the child's learning of contents, which of course takes place as well. He rather puts emphasis on a new structural level of the learning ability and, therefore, goes an important step towards explaining the structures of action, which are only built upon this level. Against the background of these considerations, however, Montessori's statements on the notion of imagination, which are obviously contradictory, - the notion of a wild and "unrestrained imagination" which has a negative connotation – has to be read in a new way. Therefore, in the *third part of the theoretical considerations* it is tried to set the record of Montessori's idea of imagination straight. The notion of imagination of divergent thinking rooted in action, which is in this way imbedded into three different theoretical traditions, but also differently accentuated, emerges, thus, in several ways, from the respective perspective as particularly justified. This theoretical result, which has made a more profound understanding of Montessori's notion of imagination possible, can be used for further discussion.

Thus, the results of American research on creativity are collected, a transfer to the developmental theory by Piaget is carried out in order to then concentrate on Montessori's position and to draw attention to the limited and more precisely determined topic, the creative behaviour of children at preschool age. How can we understand it, describe and maybe even measure it? Only if one – even though only rudimentarily – very broad survey of the problem is successful, one can gain an insight into interpretative differences of concrete educational practice, state them more precisely and balance them out. This aim cannot be achieved in this drafted way. However, one can look at a short extract, which is the last part of the chain of the educationally influenced behaviour of the child. The first very general issue of the notion of creativity is put to the theoretical empirical question: Are Montessori's observations, which make her obviously able to distinguish an "unrestrained" imagination from an inventive imagination, consistent with a systematically significant issue in the behaviour of preschool children or not? With respect to the educational discussion the issue of the specific method of Montessori Education and the practice in Montessori children

houses is raised. With the considerations here this empirical field, however, – the issue of the empirical proved existence of action of imagination – has to be narrowed.

In the first part of the empirical considerations, thus, it is tried to show the different aims of education of the preschool institutions which have to be observed. Then, it is worked out how these educational aims can be realized in the everyday life of nurseries. The question is raised whether there is indication of such an effect at all. *In a second part of the empirical research* the question is raised whether a test procedure can be found and modified in order that the creative ability of preschool children is shown with the example of graphical design and can gain first contours in its characteristic as a still developing infantile, but demanding action of the imagination. Such an empirical study could be carried out by way of the "test on inventive thinking – graphically (TSD-Z)" by Urban and Jellen (1987). It was carried out because of the used graphical method, which is suitable for the creativity of children at preschool age. In order to objectively state results of studies on Montessori children houses, however, a study on regular nurseries becomes necessary as well. In this way, the creative ability of children in the institutions, which worked according to different educational aims, was tested and was evaluated with regard to the hypotheses of the theoretical part. The phenomenon of creativity is, thus, intensified and stated more precisely in the focus of theoretical empirical considerations. Generally, the study tries – and that is the methodological approach which is applied here – to highlight the problem field of the creative development of preschool children and to bring clarity in a *theoretical empirical way*. The results of the two kinds of institutions could be collected and be brought into connection on the basis of the fundamental, here more precisely stated notion of furthering creativity, which is understood in the sense of an *evocation of divergent thinking in practice*.

The methodology of the test procedure, which is supposed to test the graphical ability, can be stated in the following way.
The TSD-Z consists of eleven key criteria. One category has four subcategories. Altogether, the TSD-Z consists of fourteen categories:

1. Continuation (Wf) of given fragments
2. Complements (Eg)
3. New elements (Ne)
4. Connections, graphically (Vz)
5. Connections, topically (Vth)
6. Boundary breaking, dependant on figure (Bfa)
7. Boundary breaking, independent of figure (Bfu)
8. Perspective (Pe)
9. Humour or affectivity/emotionality/ expressive power of the drawing (Hu)

10. Not conventional (Uk)
10. 1. Not conventional (Uka): manipulation of the material
10. 2. Not conventional (Ukb): fictitious, abstract, surrealistic topic
10. 3. Not conventional (Ukc): usage of signs and/or symbols
10. 4. Not conventional (Ukd): no use of stereotypical figures
11. Time factor (Zf)

Basically, these criteria are based upon the four components of divergent thinking: originality, flexibility, fluency and elaboration. In addition, other components are added:

- "taking risks (risk-taking), that means 'boundary breaking'
- Composition ('coherence of organization); and
- Humour as an ability, which can be manipulated in imagination in many respects since it starts from concrete realities, but can free itself from them."[16]
- To add to the factor "fluency" another criteria "time factor" is added.

The TSD-Z construction of the test consists of 6 figural fragments:

1. Geometric fragment (right angle);
2. Non-geometric fragment (sinuous line);
3. Straight line (dashed line)
4. Round line (a semi circle)
5. Localisation within a given frame (dot);
6. Localisation outside a given frame (small, lying "U")

[16] Urban, Klaus K./Jellen Hans G.: Der TSD-Z: Test zum schöpferischen Denken-Zeichnerisch [Test on Inventive Thinking – graphically], Hannover 1985, p.5.

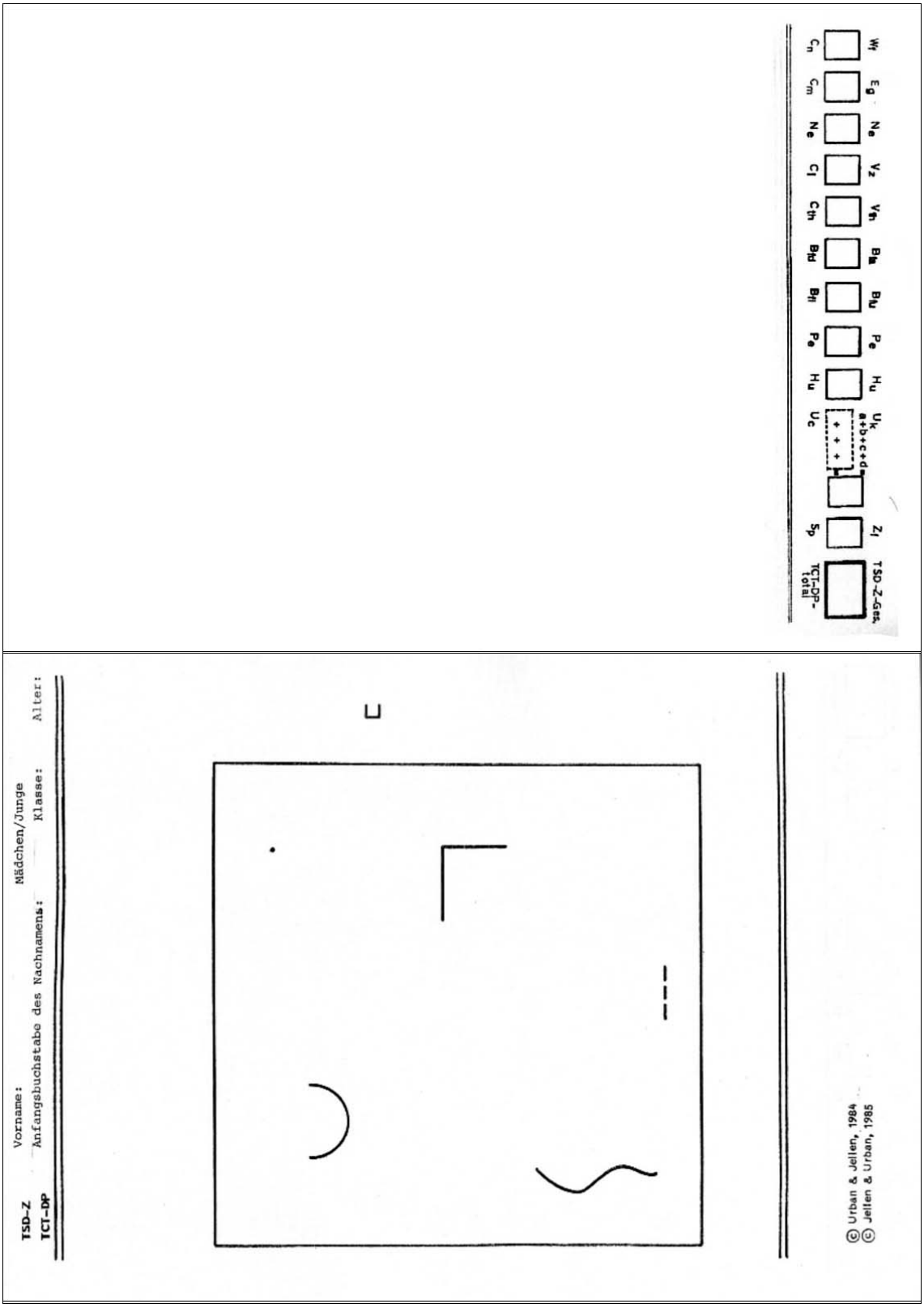


Figure 1: TSD-Z test sheet in miniaturisation (1: 0.50)

The sample consisted of 326 children who attended 12 Montessori children houses and 15 regular nurseries. The chosen children were supposed to have been in the institution for at least two years on a regular basis in order that

they could have taken the educational offers there for a course of at least two years.

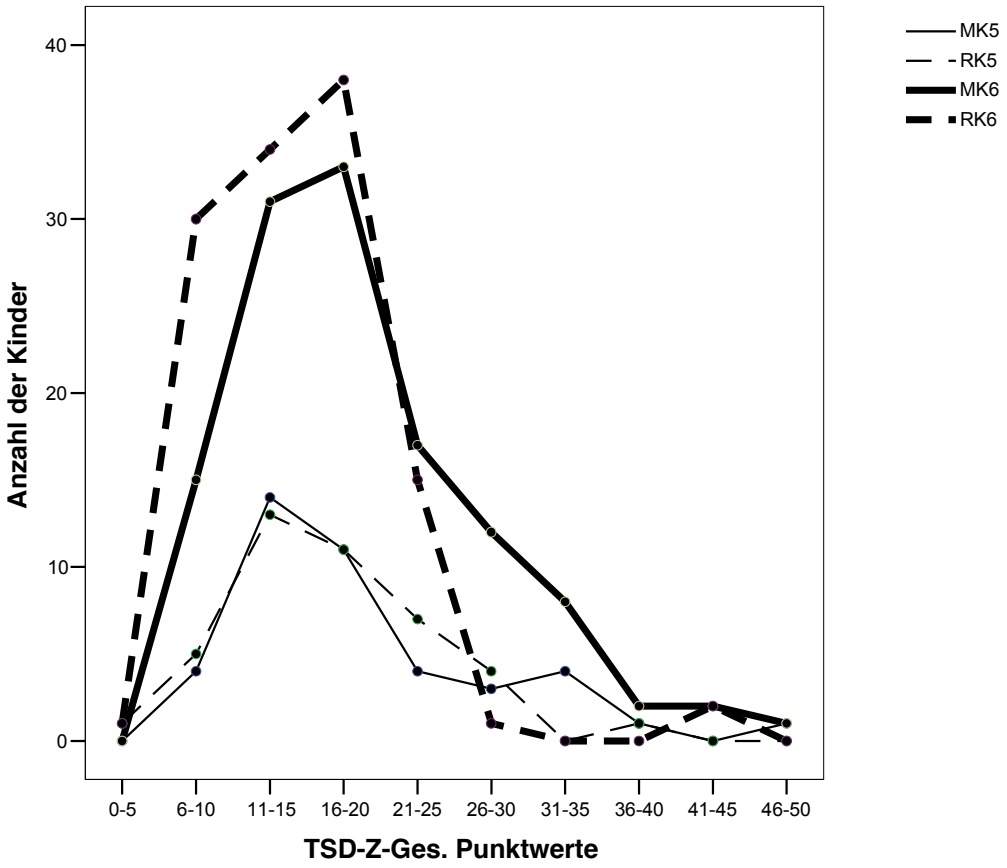
Chart 1: distribution of the sample according to age, sex and institution

			Geschlecht				Total	
			Junge		Mädchen			
			Anzahl	Col %	Anzahl	Col %	Anzahl	Col %
Alter in Jahren	5	Einrichtung MK	24	13,9%	18	11,8%	42	12,9%
		RK	22	12,7%	20	13,1%	42	12,9%
	6	Einrichtung MK	64	37,0%	57	37,3%	121	37,1%
		RK	63	36,4%	58	37,9%	121	37,1%

(MK = Montessori children houses, RK = regular nurseries)

In accordance with the working hypothesis which was gained through theoretical pre-considerations the Montessori children houses obviously differed from the regular nurseries, especially in the higher areas of the point scores.
The frequency distributions show the following: Whilst the percentage of five-year-olds from the samples in Montessori children houses of the relatively high point numbers, between 31 and 50, is 14, 3 %, in case of the regular nurseries only a percentage of 2,4 % was achieved.
In the samples of the six-year-olds similar results as in case of the five-year-olds became obvious.
In the samples of the Montessori children houses one can state a consistent distribution within the points from 6-10 to 46-50. In the samples of the regular nurseries, however, the points from 31-35, 36-40 and 46-50, which are in a relatively high area of point score, were not achieved at all.
It is obvious that the difference between the six-year-olds in the samples of both institutions in the second half of the point score area from 26-30 to 46-50 is extremely high. In the samples of the regular nurseries one can find a percentage which is almost ten times lower than that of the Montessori children houses. Apart from in three of 121 samples from the regular nurseries all other samples of the six-year-olds are positioned in the first half of the point score area.
Furthermore, it is quite striking that the percentage of the five-year-olds (11,9 %) is reduced radically in the second half of the point score areas from 26-30 to 46-50 in the samples of the six-year-olds in regular nurseries. This is shown in the following figure as well, which shows the distribution of the TSD-Z-total score of the four different sample groups.

Figure 2: Frequency polygons for the classified distributions



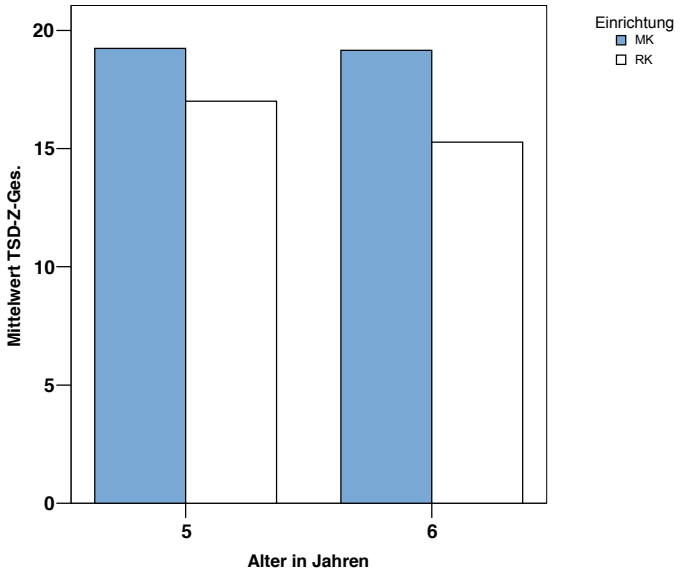
If one looks at the TSD-Z-total means of the samples in Montessori children houses and the regular nurseries according to age, the percentages for the five-year-olds and six-year-olds in the Montessori children houses are much higher than the ones in the regular nurseries, as chart 2 shows. Among the five-year-olds it is 19, 24 and among the six-year-olds it is 19,17. The TSD-Z means among the five- and six-year-olds from regular nurseries, however, are only 17,00 and 15,28. The following graphical figure shows this stark contrast of the TSD-Z mean between both institutions.

Chart 2: statistics of the samples (TSD-Z- total score)

					Mittelwert	Standardabweichung	Median	Modalwert	Anzahl
Alter in Jahren	5	Einrichtung	MK	TSD-Z	19,24	8,73	17	11	42
			RK	TSD-Z	17,00	6,99	17	12	42
	6	Einrichtung	MK	TSD-Z	19,17	8,38	18	12	121
			RK	TSD-Z	15,28	6,14	15	9	121

(Explanation: Age in years, institution, mean, standard deviation, median, modal score, number)

Figure 3: Comparison of the TSD-Z-total score between the five- and six-year-olds in Montessori children houses and regular nurseries



Montessori's claim "Children have the greater ability to construct things. We can see this in the period between three and six years, especially around the age of five... This is the special period of the power of imagination..."[17] is in accordance with the result in chart 2. With regard to this statement of Montessori the TSD-Z-total means of the five-year-olds were higher than those of the six-year-olds in the Montessori children houses as well as in the regular nurseries.

In chart 3 the means of all criteria of evaluation of the TSD-Z and the correlation coefficients according to Spearman and the t-test in all samples of the Montessori children houses are shown.

Chart 3: Comparison of the means of the criteria of evaluation of the TSD-Z and the correlations between the criteria of evaluation and the institution

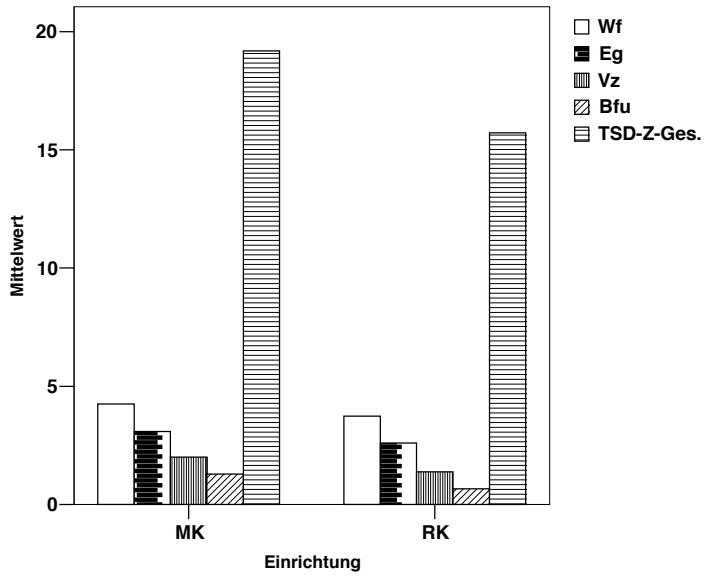
	Mittelwert MK	Mittelwert RK	Mittelwert Total	Korrelation Spearman-Rho	Korrelation Sig. (2-seitig)	T-Test Sig. (2-seitig)
Wf	4,245	3,742	3,994	-0,222	0,000	0,002
Eg	3,086	2,601	2,844	-0,150	0,007	0,013
Ne	2,859	2,644	2,752	-0,047	0,402	0,382
Vz	2,006	1,380	1,693	-0,144	0,009	0,003
Vth	1,417	1,245	1,331	-0,044	0,427	0,378
Bfa	1,546	1,031	1,288	-0,105	0,059	0,059
Bfu	1,288	0,663	0,975	-0,141	0,011	0,011

[17] Montessori, Maria: Intelligenz und Einbildungskraft [Intelligence and the Power of Imagination], in: Montessori-Werkbrief [Montessori Work Letter], nr. 25. 1971, p. 4-5.

Pe	0,037	0,055	0,046	0,016	0,770	0,507
Hu	0,423	0,288	0,356	-0,031	0,580	0,157
Uk	0,552	0,362	0,457	-0,075	0,175	0,130
Zf	1,724	1,712	1,718	-0,003	0,954	0,948
TDS-Z-Ges.	19,184	15,724	17,454	-0,209	0,000	0,000

Not only the TSD-Z-total mean, but also the four criteria of evaluation of the TSD-Z, "continuation", "additions", "connections graphically" and "boundary breaking, independence of the figure" correlate statistically significantly. Altogether, the TSD-Z-total correlates statistically with the institutions the most significantly (p<= 0,001). In the two sorts of institutions the four criteria of evaluation of the TSD-Z and the TSD-Z-total are compared with each other.

Figure 4. Comparison of the mean of the four statistically significant categories of evaluation of the TSD-Z and the TSD-Z- total mean in the samples of Montessori children houses with regular nurseries



The test results show that the four statistically significant categories of evaluation of the TSD-Z correlate strongly with the institution with regard to the furthering of creativity of preschool children.

In addition, the comparison of the results from the different conditions of comparison as age, sex and the total number of samples the TSD-Z- total mean of the samples from Montessori children houses shows a statistically significant superiority over the results from the regular nurseries with regard to the respective category.
Altogether, - apart from age and sex – the samples of the Montessori children houses are significantly superior to the samples from the regular nurseries in the category TSD-Z-total and in the four criteria of evaluation

"continuation", "additions", "connections graphically" and "crossing borders independent of the figure".

As one can conclude from the theoretical foundations of Montessori Education the hypothetically assumed correlation between the aim setting of Montessori Education and the furthering of creativity among preschool children could be confirmed by way of the results within the context of the TSD-Z test procedure with the proof of correlations.
This result shows that if children work independently with Montessori material and are supported in carrying out their own ideas through the experience with dealing creatively with the environment – and also if the creative personality is formed– it can have a positive effect.

4.3 Empirical studies on Montessori Education in Germany

An overview (as at March 2008)
Composed by Harald Ludwig (University of Muenster)

1. Writings by MARIA MONTESSORI with elements of empirical research (selection)

(In her early years Maria Montessori carried out some quantitative empirical oriented studies with anthropological and socio-scientific issues, which have not been published in a German translation, yet)

- Influenza delle condizioni di famiglia sul livello intellettuale degli scolari, in: Rivista di Filosofia e Scienze affini VI (1904), 2, n. 3-4, p. 234-284.

- Sui caratteri antropometrici in relazione alle gerarchie intellettuali dei fanciulli nelle scuole, in: Archivio per l'Antropologia e la Etnologia 34 (1904), Fasc, 20, p. 243-300.

- Die Entdeckung des Kindes [The Discovery of the Child], Freiburg 1969, 19th edition 2007.

- Schule des Kindes [School of the Child], Freiburg 1976, 8th edition 2007.

- Über das Beobachten [On Observing], in: Montessori 44 (2006), p. 15-17.

- Das Kind offenbart sich selbst [The Child shows itself], in: Montessori, M.: Erziehung für eine neue Welt [Education for a New World], Freiburg 1998, p. 18-35.

2. Empirical studies on Montessori Education (selection)

2.1 Reports and overviews

NEISE, Karl: Das lernbehinderte Kind und die Montessori-Paedagogik [The learning-disabled Child and Montessori Education], in: Montessori-Werkbrief [Montessori Work Letter] 50/1978, p. 13-34.

SCHULZ-BENESCH, Guenter: Exakt-empirische Untersuchungen zur Montessori-Paedagogik [Exact Empirical Studies on Montessori Education], in: SCHULZ-BENESCH: Montessori, Ertraege der Forschung [Montessori, Results of Research] vol. 129, Darmstadt 1980.

HEILBRÜGGE, Theodor: Integrierte Erziehung durch Montessori-Heilpaedagogik – Ein Bericht ueber die gemeinsame Erziehung mehrfach und verschiedenartig behinderter mit nichtbehinderten Kindern in den Montessori-Schulen des Kinderzentrums Muenchen [Integrated Education by way of Montessori Therapeutic Pedagogy – A Report on Combined Education of Multi- and Differently Disabled with Non-disabled Children in the Montessori Schools of the Child Centre in Munich], in: Roehrs, H. (ed.): Die Schulen der Reformpaedagogik heute [The Schools of New Education Today], Duesseldorf 1986, p. 305-322.

PICKENHAIN, Lothar: Montessori-Paedagogik im Lichte der Neurowissenschaft [Montessori Education in light of Neuroscience], in: HARTH-PETER, W. (ed.): „Kinder sind anders“. Maria Montessoris Bild vom Kinde auf dem Pruefstand [„Children are different“. Maria Montessori's Ideas of the Child put to test], Wuerzburg 1996, p. 153-181.

LUDWIG, Harald: Freiarbeit in der Grundschule im Lichte empirischer Forschungen [Free Activity in Primary school in light of Empirical Research], in: Lersch, Rainer (ed.): Aspekte moderner Grundschulpaedagogik [Aspects of modern Primary Education], 2nd edition, Baltmannsweiler 1997, p. 66-94.

FISCHER, Reinhard: Empirische Ergebnisse der Montessori-Paedagogik [Empirical Results of Montessori Education], in: LUDWIG, Harald (ed.): Montessori-Paedagogik in der Diskussion – Aktuelle Forschungen und internationale Entwicklungen [Montessori Education under Discussion –

Current Research and International Developments], Freiburg: Herder 1999, p. 173-218.

The author, who works at Muenster University, gives an overview of results of the research on Montessori Education since the middle of the 1950s especially in Germany. He puts the studies in order under the categories nursery, primary school, secondary school, school for children with special needs (therapeutic pedagogy). As regards contents, he, especially, deals with research results on the areas social behavior, performances, work habits, integrated education.

2.2 Dissertations (put into order chronologically; if published as book, it will be remarked)

AURIN, Kurt: Die Bedingung der Schuelerleistung durch die schulische Gestaltungsform [The Condition of the Pupil's Performance by way of the School Design], diss. FU Berlin 1957.

WALTER, H.: Die Verwendung technischer Lernhilfen in Abhaengigkeit von der Leistungsmotivation der Schueler [The Use of Technical Learning Support dependant on the Pupils' Achievement Motivation], diss. University of Graz 1968 (Project Heckhausen).

SUFFENPLAN, Wilhelm: Untersuchungen zur Makroperiodik von Lernaktivitaeten bei Neun- bis Elfjaehrigen in einer Schulsituation mit freier Arbeitswahl [Studies into the macroperiodic of learning Activities among nine- to eleven-year-old Pupils in a School Situation with free Choice of Work], diss. PH Ruhr 1975.

FAEHMEL, Ingrid: Zur Struktur schulischen Unterrichts nach Maria Montessori [On the Structure of Lessons according to Maria Montessori], Frankfurt/Bern 1981 (Diss. PH Westfalen-Lippe 1979).

FISCHER, Reinhard: Lernen im non-direktiven Unterricht [Learning in non-directed Lessons], Frankfurt/Bern 1982 (Diss. Osnabrueck University 1979).

The following five dissertations belong within the context of the school experiment in Munich on integrative education by Prof. Dr. Theodor Hellbruegge:

PAVEL, Annegret: Ueber die Dauer von Aufmerksamkeitszuwendungen bei Kleinkindern [On the Length of drawing Attention to Infants], diss. Munich University 1972.

PERTSCH, Reinhard: Analyse soziale Lernsituationen – Entwicklung eines „Analysesystems sozialer Situationen zur Unterrichtsrevision“ (ASSUR) und Erprobung an Unterrichtsdokumenten aus der Muenchener Montessori-Schule [Analysis of Social Learning Situations – Development of a “System of Analysis of Social Situations on Lesson Revision“ (ASSUR) and the Testing of Lesson Documents from the Montessori School in Munich], diss. Munich University 1979.

STENGEL, J.: Konzentrationsfaehigkeit, vegetative Labilitaet und Angstverhalten. Eine vergleichende Untersuchung zur Unterrichtshygiene [Ability to concentrate, vegetative Lability and Behaviour of Anxiety. A Comparative Analysis on Hygiene in Lessons], diss. Munich University 1983.

DIETEL, B.: Schulangst und psychosomatische Beschwerden (Ursachen, Bedingungen und Konsequenzen – eine empirische Untersuchung bei 9- bis 16jaehrigen Schuelern verschiedener Schultypen [Fear of School and psychosomatic Disorders (Reasons, Conditions and Consequences – an Empirical Study among 9- to 11-year-old Pupils from different School Types)], diss. Munich University, Frankfurt 1984.

WOERNLE, R.Ch.: Auswirkungen der gemeinsamen Unterrichtung behinderter und nichtbehinderter Kinder nach den paedagogischen Prinzipen von Maria Montessori auf Konzentrationsverhalten, Schulangst, Schulunlust, Schulleistungen und soziale Integration [Consequences of Integrative Teaching of Disabled and Non-disabled Children according to Maria Montessori’s Educative Principles for Concentration Behaviour, Fear of School, Aversion to School, Performances at School and Social Integration], diss. Munich University 1984.

EISENBRAND, Margarete: Die soziale Dimension im Erziehungswerk Montessoris – Darstellung und Reflexion der aktuellen Geltung – aufgezeigt am Beispiel phaenomenologischer Beobachtungen im Elementarbereich [The Social Dimension of Montessori’s Educational Work – Presentation and Reflection of the Topicality – shown at the Example of Phenomenonelogical Observations in the Elementary Field], diss. TH Aachen 1986.

BIEWER, Gottfried: Montessori-Paedagogik mit geistig behinderten Kindern [Montessori Education with mentally disabled Children], Bad Heilbrunn 1992 (diss. Wuerzburg University 1991)

MEISTERJAHN-KNEBEL, Gudula: Montessori-Paedagogik und Bildungsreform im Schulwesen der Sekundarstufe [Montessori Education and

educational Reform in the Field of Secondary School], Frankfurt a.M. 1995 (diss. Muenster University 1994).

WIESE, Elke-Susanne: Paedagogik fuer besondere Beduerfnisse an der Grundschule – Fallbezogene Analyse der Einfuehrung schulischer Integration auf der Grundlage der Montessori-Paedagogik in Thueringen im Zeitraum von 1993/94 bis 1997/98 [Education for special Needs in Primary School – Case Analysis of the Introduction of School Integration on the basis of Montessori Education in Thueringen in the Period of 1993/94 – 1997/98], diss. Dortmund University 1999.

CONEIN, Stephanie: Umweltbildung an Reformschulen – Leitbildanalysen an Montessori- und Waldorfschulen [Environmental Education at New Schools – Model Analyses at Montessori and Rudolf Steiner Schools], Berlin 2000 (diss. Bielefeld University 2000).

MEYER, Anke: Die Montessori-Hauptschule Ferdinandstraße in Koeln aus der Perspektive ihrer Schuelerinnen und Schueler: eine Hauptschule im Spannungsfeld zwischen Restschule und Reformschule [The Montessori General-education Secondary School (Level 1, yrs 5-9) Ferdinandstraße in Cologne from the Perspective of its Pupils: a Secondary School in the Area of Conflict between Rest School and New School], Osnabrueck 2001 (diss. Bielfeld University 1999).

HENRY, Walburga: Sachunterrichtliches Lernen in der Montessori-Paedagogik [Social scientific Learning in Montessori Education], series: Impulse der Reformpaedagogik [Impulses of New Education], edited by H. Ludwig, vol. 6, Muenster 2001 (diss. Muenster University 2000).

GRINDEL, Esther: Lernprozesse hochbegabter Kinder in der Freiarbeit der Montessori-Paedagogik – Eine empirische Analyse auf der Basis von Einzelfallstudien in Montessori-Grundschulen, Impulse der Reformpaedagogik [Learning Processes of Highly Gifted Children in Free Activity of Montessori Education – an Empirical Analysis based on One Case Studies in Montessori Primary Schools, Impulses of New Education], edited by H. Ludwig, vol. 17, Muenster 2007 (Diss. Muenster University 2005).

HANEWINKEL, Nicole: Handlungsorientiertes Lernen mit dem Bruchrechenmaterial Maria Montessoris – Eine Analyse von Arbeitsweisen und mathematischen Verstehensprozessen bei Grundschulkindern, Impulse der Reformpaedagogik [Action-oriented Learning with Maria Montessori‘s Material on Fractional Arithmetic - an Analysis of Working Procedures and Mathematical Processes of Understanding among Primary School Children,

Impulses of New Education], edited by H. Ludwig, vol. 18, Muenster 2007 (diss. Muenster University 2006).

KIM, Sung-Hui: Kreativitaetsfoerderung und Montessori-Paedagogik – Untersuchungen bei Kindern im Vorschulalter [Furthering of Creativity and Montessori Education – Studies among Children at Preschool Age], diss. Muenster University 2007 (publication as book under way).

2.3 Further empirical or empirical-oriented studies

SCHULZ-BENESCH, Guenter: Klassenversuche mit Freiarbeit [Experiments in Classes with Free Activity], in: DERS: Zum Stil katholischer Schulen heute [On the Style of today's Catholic Schools], Munich 1964, p. 56-85.

KOHLBERG, Lawrence: Montessori fuer kulturell Benachteiligte [Montessori for culturally Underprivileged], in: Hess/Bear (ed.): Fruehkindliche Erziehung [Early Childhood Education], Weinheim 1972, p. 111-126.

SUFFENPLAN, Wilhelm: Motivationsdynamik und Aktivitaetsrhythmik in Freiarbeitssituationen [Motivation Dynamics and Rhythm of Activity in Free Activity Situations], in: Montessori-Werkbrief [Montessori Work Letter], nr. 33/34 – 1973, p. 25-31.

SUFFENPLAN, Wilhelm: Verlaufsstrukturen spontaner Aktivitaet [Course Structures of Spontaneous Activity], in: GUSS, Kurt (ed.): Gestalttheorie und Erziehung [Design Theory and Education], Darmstadt 1975, p. 95-121.

SUFFENPLAN, Wilhelm: Die sensible Perioden im Lichte neuer Untersuchungen zur Aktivitaetsentfaltung in freier Spiel- und Arbeitssituation [The Sensitive Periods in light of recent Research on Activity Development in Free Playing and Working Situations], in: Montessori-Werkbrief [Montessori Work Letter] 47/48 – 1977, p. 25-44.

FISCHER, Reinhard: Zum Sozialverhalten frei arbeitender Kinder – Soziale Erziehung in der Montessori-Paedagogik [On the social Behaviour of Children working in free Activity – social Education in Montessori Education], in: Montessori-Werkbrief [Montessori Work Letter] 20 (1982), p. 69-87.

HELLBRUEGGE, Th. /AURIN, M./OCKEL, B.: Integrierte Erziehung gesunder Kinder mit mehrfach und verschieden behinderten Kindern – Schulversuch der Aktion Sonnenschein in Muenchen [Integrative Education of Non-disabled Children with Multi- and Differently disabled Children – School Experiment of the Mission „Sonnenschein" in Munich], in: Deutscher

Bildungsrat [German Advisory Council for Education] (ed.): Schulversuche zur Integration behinderter Kinder in den allgemeinen Unterricht [School Experiments on the Integration of disabled Children in Regular Lessons], Braunschweig 1976.

HELLBRUEGGE, Theodor: Unser Montessori-Modell – Erfahrungen mit einem neuen Kindergarten und einer neuen Schule [Our Montessori Model – Experiences with a new Nursery and a new School], Munich 1977.

NEISE, Karl: Empirische Untersuchungen ueber Effekte Montessori-orientierten Unterrichts bei geistig behinderten Schuelern [Empirical Research on Effects of Montessori oriented Lessons among Mentally Disabled Pupils], in: Zeitschrift fuer Heilpaedagogik [Journal for Therapeutic Pedagogy] 20 (1984), p. 389-397.

SUFFENPLAN, Wilhelm: Empirische Untersuchungen ueber Effekte Montessori-orientierten Unterrichts bei lernbehinderten Schuelern [Empirical Research on Effects of Montessori-oriented Lessons among learning-disabled Pupils], in: Zeitschrift fuer Heilpaedagogik [Journal for Therapeutic Pedagogy] 20 (1984), p. 398-413.

SCHMUTZLER, Hans-Joachim/ HEIMANN, Irmgard/ KLEIN, Hella: Die Relevanz der Montessori-Paedagogik fuer die Sprachfoerderung des sozial benachteiligten Kindes [Relevance of Montessori Education to the Language Promotion of the socially neglected Child], in: Montessori-Werkbrief [Montessori Work Letter] 24 (1986), p. 127-135.

JONES, Ilse: Moeglichkeiten und Grenzen der Montessori-Paedagogik – Das Jugenderziehungskonzept der Maria Montessori in der Sekundarstufe 1 [Possibilities and Limitations of Montessori Education – The Educational Youth Concept by Maria Montessori in Lower Secondary School], Frankfurt/M.: Lang 1987.

EWIJK, Nico van: Entwicklungsmaterial – Formgebung, Herstellung und Bewertung von Lernmitteln fuer den Montessori-Unterricht [Developmental Material – Forming, Production and Evaluation of Learning Material for Montessori Lessons], Amsterdam 1986 (Dutch), Muenster 1988 (German); also compare: EWIJK, Nico van: Systematische Lermittelentwicklung im Bereich der Kosmischen Erziehung [Systematic Development of Learning Material in the Field of Cosmic Education], in: Fischer, R./Klein-Landeck, M./Ludwig, H. (eds.) Die „Kosmische Erziehung“ Maria Montessoris [The “Cosmic Education“ of Maria Montessori], Muenster 1999, p. 171-180.

HAMMERER, Franz: Innenansichten von Montessori-Grundschulklassen [Interior Views of Montessori Primary School Classes], in: HAMMERER, F./HABERL, H. (eds.): Montessori-Paedagogik heute, Grundlagen – Innenansichten - Diskussionen [Today's Montessori Education, Basic Principles – Interior Views – Discussions], Vienna 2004, p. 87-121.

BEDNARCZUK, Beata: Montessori-Paedagokik in Lublin – Moegen Kinder in Lublin ihre Schule [Montessori Education in Lublin – Do Children like their School in Lublin?] in: Montessori 42 (2004), p. 43-52.

SUFFENPLAN, Wilhelm: Die Lernstandsergebnisse von VERA 2004 bei Montessori-Schulen und –Zweigen Nordrhein-Westfalens [Skill Level Results of VERA 2004 at Montessori Schools and Schools with a Focus on Montessori Education in North Rhine-Westphalia], in: Montessori 44 (2006), nr. 1/2, p. 18-60.

RINDSKOPF DOHRMANN, Kathryn: Schuelerleistungen in einem Montessori-Programm – Eine Laengsschnittstudie zu den Erfahrungen in den Milwaukee Public Schools [Outcomes for Students in a Montessori Program – a Longitudinal Study of the Experience in Milwaukee Public Schools], in: Montessori 44 (2006), p. 61-68.

LILLARD, A./ELSE-QUEST, N.: Evaluating Montessori Education, in: SCIENCE, vol. 313, 29th September 2006, p. 1893-1894.

LILLARD, Angeline Stoll: Montessori – The Science behind the Genius, New York 2007.

3. Journals on Montessori Education in Germany

- MONTESSORI – Zeitschrift fuer Montessori-Paedagogik [Journal for Montessori Education], hrsg. von der deutschen Montessori-Vereinigung e.V. Sitz Aachen [edited by the German Montessori Association, situated in Aachen, 4 volumes every year (until 1992 under the title "MONTESSORI-WERKBRIEF [MONTESSORI WORK LETTER], ISSN 0944-2537.

- DAS KIND – Halbjahreszeitschrift fuer Montessori-Paedagogik [THE CHILD – Journal for Montessori Education published twice a year], hrsg. von der Deutschen Montessori-Gesellschaft e.V., Sitz Wiesbaden [edited by the German Montessori Society, situated in Wiesbaden], two volumes a year, ISSN 0945-5582.

5. Some additional news

5.1. MONTESSORI SUMMER SEMINAR in Hengelo, Muenster, Amsterdam

by Liene Hendriksen (Hogeschool Edith Stein, Hengelo, The Netherlands)

THE MONTESSORI SUMMER SEMINAR will take place from 23rd to 29th of August 2009

The Hogeschool Edith Stein/OCT (Hengelo, The Netherlands) in collaboration with the University of Muenster (Germany), and AMI (Association Montessori International, Amsterdam), organizes this special summer seminar around the theme: *Neuroscience and Montessori - A Natural Partnership*.

The programme includes a journey through history, science, the present and the past. It is a unique opportunity to live and learn together with Montessori teachers from many different countries, to listen to international speakers, to participate actively in a workshop, and to visit special schools. To put it briefly: Together you will make a journey, which is not only physically, but also brain based.

For more information, please go to www.edith.nl, and click on 'Montessori Summer Seminar' in the right column "Edith Stein Nieuws". The application form is attached. You can also go to the website of the Montessori Centre at Muenster University: http://egora.uni-muenster.de/ew/mz (see there the rubric "NEWS")

Contact person at Edith Stein Teacher Training College/OCT: Mrs. Liene Hendriksen (hendriksen@edith.nl or internationaloffice@edith.nl)

Target group: Montessori teachers from all countries

Status of the certification
The awarded certificate is based on 2 ECTS (50 hours). It contains the following text:
Montessori Summer Seminar 'Neuroscience and Montessori – A Natural Partnership. The seminar is an in-depth course leading to a certificate that supplements any existing Montessori diploma. The certificate can also be used as evidence for your professional development. If you wish the seminar to be acknowledged to be part of your study, we advise you to write a daily report and include personal reflection. Whether you can use those reports as part of your regular study is at the discretion of your own college/university.

Costs:
Seminar Fee: € 900**;**
Transport, accommodation and meals: € 900

Thanks funding of the European Platform the Summer Seminar can be offered at the reduced price of € 1200.

Language of communication: English
Minimum number of participants: 15
Deadline for application: May 1, 2009

5.2 A Short Information on the Swedish Montessori Research Network

Per Gynther, member of the Montessori Group of the University of Stockholm, sent us the following note

"I heard from Eva-Maria that you would like a short description of our Swedish network M.E.R (Montessori education and research) and therefore I write to you.

The Swedish network M.E.R was established in the year 2000 by some Swedish teachers at universities and university colleges in Sweden, where courses in Montessori Pedagogy in some way were given. Today, in the year 2008, the network is represented by members from the Universities of Stockholm, Gothenburg, Malmoe, Uppsala and Lund. The purpose of establishing the network was, and still is, to promote Montessori Pedagogy, and make sure that attention is not only paid to it at Swedish universities, but also in the society in general. The network also aims to promote research on the pedagogy and to establish contacts abroad where research is represented."

5.3 Contents of the Montessori magazine COMMUNICATIONS (ed. by the A.M.I., Amsterdam) 2-2008

The magazine *Communications* of the Association Montessori Internationale, seated in Amsterdam, is going to present a more theoretical and scientific approach to Montessori Education. The issue 2-2008 has the main topic *Empirical Research and Observation*. Further the fourth of Montessori's six lessons on "Cosmic Education" at the London Vacation Course 1935/36, which has not been published yet, is published there for the first time. (The first three lessons were printed in the numbers 1/2007, 2/2007, 1/2008; the two others will follow in 1-2009 and 2-2009). Since we think that the number 2-2008 could be especially interesting for our MORE Group, we give its contents in the following to you. If you are interested in the magazine, you can order it: info@montessori-ami.org

COMMUNICATIONS
2008/2
Journal of the Association Montessori Internationale

Contents 2, 2008

THEME OF THIS ISSUE: EMPIRICAL RESEARCH AND OBSERVATION

Montessori elaborates on the crucial role of Observation. The article is the synthesis of two lectures on the 1921 London course.

Researching Montessori: What Matters and Why
Jacqueline Cossentino
Focusing on the United States, the article discusses two recent influential studies. The author makes a strong plea for new and broad research across various disciplines.

Recent Empirical Research on Montessori Education in Italy
Clara Tornar
Some recent pilot projects in Italy are discussed, among which were "The Identity of the Montessori School" and "Learning to Learn in Montessori Schools".

Recent Empirical Research on Montessori Education in Germany
Harald Ludwig
With an introduction to VERA 2004, a comparative research project in German. The article also includes a summary of a study into furthering creativity through Montessori Education.

The Scientific Topicality of the Montessori Model
Clara Tornar
This article offers a precise description on the how's and why's of the Montessori model.

Cosmic Education

Cosmic Education, Fourth Lecture
Maria Montessori (1936)
Montessori talks extensively about sea life, continuing her descriptions of the interconnectedness of all organisms on earth, however small, and revels in the wonder of coral reefs and their creation.

Theory & Practice

Question and Answer: Observation in the Elementary Classroom
Kay Baker
An article filled with suggestions on how to develop observation habits in the elementary classroom.

Montessori and Tools for Life
An Interview with Henk Barendregt, chair of the Foundations of Mathematics and Computer Science at Nijmegen University – and Montessori student from 4-17.

The Absorbent Mind
Paul Pillai
The author shares with us the cosmic elements of Montessori's achievements, and tells an inviting story on man's reasoning power, and the intelligence of the mind.

Publishers
Association Montessori Internationale
Koninginneweg 161
1075 CN Amsterdam, Netherlands
Tel: +31 20 6798932
Fax: +31 20 67672341
e-mail: info@montessori-ami.org
www.montessori-ami.org

NOTE:
This NEWSLETTER was composed by Prof. Dr. Harald Ludwig (University of Muenster) and Lena Siebenkotten, assistant of the Montessori Centre (University of Muenster).