STATE OF THE ART OF „VISUAL LEARNING" IN GERMANY

National Report

Daniela Harlinghausen - Monika Tröster

Deutsches Institut für Erwachsenenbildung (DIE)

Contract Number:	225773 – CP – 1 – DE – GRUNDTVIG – G - 1
Project Title:	visuaLearning
EU-Research Programme and Financing:	Socrates Grundtvig 1
Project-Coordination:	Deutsches Institut für Erwachsenenbildung (DIE)
Project Homepage:	www.die-bonn.de/visual
Reporting Party:	Deutsches Institut für Erwachsenenbildung (DIE)
Publishing Date:	Bonn 2006, Update January 2008

Content

Initial Remarks

According to the project proposal of the EU-project “visuaLearning” an expertise on the level of science will be prepared in reference to visual learning in the German-speaking area. This project is carried out with the support of the European Community within the GRUNDTVIG campaign of the SOCRATES programme. The inquiry for this expertise has been carried out almost exclusively online. The sole responsibility for the content lies with the authoress. The opinion of the European Commission is in no way portrayed.

1. Introduction

1.1 Presentation of the objectives of the “visuaLearning” project

Knowledge-based societies of today are highly focused on information transfer based on text. Beginning during school and subsequently continued in vocational training, university studies or further education, learning takes place mainly by means of conveying, reading and producing texts. At the same time communication by means of pictograms is on the increase a lot in everyday life as well as in business life. I.e. conveying information with the help of displays, which causes a complexity of processes to one´s sight. Many work processes occur during PC use with the help of so-called icons. All software programmes e.g. of Microsoft or Apple guide the user through their programmes with the support of icons. Vending machines are equipped with touch screens; Computer information sources in museums are more and more characterized by this technique. By using pictograms, images, symbols and icons information is made more accessible to the user and the operation process of a ticket vending machine for example is simplified and accelerated.
In all these examples an understanding of pictures and symbols is required. This leads to the following introductory question being raised.
To what extent is the learning process supported and influenced by images and visual impressions regarding the efficiency of learning?

Common learning theories do not give an appropriate answer to this question. The question is left to disciplines related to arts, e.g. design, advertising, etc. However, the learning process has thus far not been the focus. Regarding EU-Projects this question has not yet been posed particularly in the context of adult education. From our experiences in basic skills we know that especially people with low literacy skills depend on processing information through means of images. In this connection this ability is regarded as a compensation strategy serving as a support in everyday life for persons concerned. Thus, it is described as

compensation of a deficit, at the same time it could be viewed as a special strength or competence. Even today it has frequently not been appropriately recognised as yet due to this being an informally acquired competence.

1.2. Relevant questions

For the project the question of concern is about the relevance visual learning has in today's learning processes – especially related to the literacy campaign/basic education and language courses. We will be preoccupied with the question as to which connection mechanism is between the three levels of information processing and – perceiving, learning processes and acting. How can the person teaching react to these mechanisms in the best possible way and deal with them individually in order to use them for a successful learning process?

Regarding the current literature on the subject "visual learning" and the respective experts it becomes clear that there are many different disciplines contributory to the topic, what has a significant influence on respectively understanding of the term. It thus depends on their individual scientific background how the topic is interpreted and understood.

The very basic meaning of „visual learning" is portrayed through visual psychophysics: visual learning is the recognition of objects, of patterns as well as through seeing movements and colours, all initially without regarding aspects of cognitive psychology. For some time now information processing i.e. important content of the cognitive psychology science – has been regarded as an essential part of the learning process. The approaches of object recognition of cognitive psychology was developed in the 1960s and the1970s. Whereas they have been restricted to the schematic representation postulated in the processing stages". If thinking, acting and planning are understood as active information processing, the ability of classifying – within the context of object recognition – moves into the centre of interest: "perceived objects are treated equivalently in accordance with their similarity." (Jüttner, p. 1-2)
This is all for now with regard to the basic understanding of the term. Within this expertise there will not be more given details about visual psychophysics, because it is of minor importance for the project context.
What has been established as so called "image-science", offers an ideal framework for research concerning the subject visual learning. Here within image-science multidisciplinary is almost a precondition for participation. For example the "the Virtual Institute for image-

science" is presented on the internet under the category "Centre for multidisciplinary image-science". (www.ViB.org).
It is unquestionably possible to find and classify relevant aspects under the generic term of image-science within the project's context. At this point it is necessary to describe the term "image" in more detail so as to avoid any misunderstanding attributed to banality.

"Images are symbols which are close to apperception" according to the thesis of Klaus Sachs Hombach[1]. Pictures therefore have a clear character of reference; on the other hand the interpretation of these is relative to the apperception -standard. "Close to apperception" implies that the meaning, which should be communicated through the picture, comes from the structure of the image (the symbol) itself. "We use images in the general sense of this thesis in order to visually distinguish single aspects of real or fictive objects or issues, i.e. to make them visible" (Sachs-Hombach, in Huber, Lockemann, Scheibel (ed.) 2003, p. 19-21)

2. About the procedure

2.1 Internet research on the subject "visual learning" – aspects, scientific research and projects

The research on "visual learning" has been conducted based primarily on the internet. Search keys were "visual learning", resp. "visually learning". The advanced research resulted from first attempts at the research process. The following terms led to results or are in context with the subject: visualisation, visual competence, image science, visual perception, visual thinking, visual language and visual telling.
Further interesting items of the project were "visual literacy"; "visual learning and basic skills", "perceptive localisation", visual communication, image communication and visual competence. The results will be explained in the following section.

One of the most found data based research platforms is offered by the "Deutscher Bildungsserver" (German Server for Education) www.bildungsserver.de. With the keyword "visual learning" 3566 hits have been achieved. This is mainly due to the parallel search for

[1] The author shares the opinion that finding a defintion for basic terms is a rather difficult subject and therefore refrains from doing so. (Sachs-Hombach, in Huber, Lockemann, Scheibel (ed.) 2003, p.19-21)

different offers e.g. “ZeitDok” (2008hits) and “ZDF-Medienkatalog” (97hits) which each have a large amount of data at their disposal, however, their respective relevance is not given here.

The FIS-Bildung Literaturdatenbank (Education and Literature Database) occurs from these search results and is the most important source. Here a further search which completely provides details to the articles and publications is mostly liable to cost. Provided the opportunity to search in two other databases the search was therefore extended.

A temporary user license for research can be purchased at the provider “Infoconnex” (www.infoconnex.de). By buying this licence the user is authorised to do a simultaneous search in the FIS-Database, in SOLIS – Sozialwissenschaftliches Literaturinformationszentrum (Literature Information System of Social Sciences) and in Syndex – Datenbank des Zentrums für Psychologische Information und Dokumentation (Database of the Centre for Psychological Information and Documentation) (ZPID) at the University of Trier.

The second largest part of the research was carried out via “simple” search with the internet search-engine “Google” (www.google.de). Gradually the above mentioned search terms evolved due to this procedure. Experts, projects and institutions can be found bit by bit in this way, i.e. many search results can be found with links found on pages which were visited before.

2.2 Specialized literature

Parts of the relevant “paper-based” literature have thus been discovered. As expected, subject related literature and more so their valid details were compiled with the help of online research - catalogues of major libraries; some examples will be presented later on. The library of the German Institute for Adult Education - DIE turned out to be very useful, the Centre of University Libraries of North Rhine-Westphalia as well as the meta search engine of the Technical University of Karlsruhe.

One of the first results of the inquiry is the book publication by Martin Jüttner „Visuelles Lernen - Erwerb und Anwenden bildkategorialen Wissens“ (“Visual Learning – Acquisition and Application of Image-Categorial Knowledge”). Title and summary of the book indicate a high relevance for the project’s context (see selected examples in the next section).

What this book actually offers is a basis for visual perception, however, the exact meaning of the results and facts and their impact in practice in further education and qualification is not precisely explained. The publication therefore basically offers useful facts (see the above section “depiction instead of definition”). The reader has the option to individually deduce the context of the education aspect. (See following recommendations concerning the project).

“Image/Media/Knowledge. Visual Competence in the Media Age“, published by Hans Dieter Huber, Bettina Lockemann und Michael Scheibel. The content is subdivided into four parts: image theory, visual competence, visual knowledge and “image and knowledge on the net”. Overall it contains 18 essays, which have been compiled within a work-shop of the model-project “Visuelle Kompetenz im Medienzeitalter“ (Visual Competence in the Media Age). The first essay “Begriff und Funktion bildhafter Darstellung“ (Term and Function of Image Displays) by Klaus Sachs-Hombach provides an interesting thesis and further interesting facts concerning the discussion of terminologies (Sachs-Hombach, in Huber, Lockemann, Scheibel(ed.) 2003).
The research showed that the topic visual learning is nowadays strongly influenced by an interdisciplinary participation. This is confirmed by the authors mentioned here, in particular by Klaus Sachs-Hombach. In his essay “Image Sciences – an Interdisciplinary Task” he explains the (historical) development of a (new) image science and tries to indicate applying a regulating system based by comparison on the established science of linguistics (Sachs-Hombach 2004).

The research on professional books or publications in online public library catalogues of the (WebOPACs) basically confirmed what has been found via the internet search engine “Google”. Although there were not really any new facts found with the WebOPACs it is essential to use them because the complete details of the resources can be found only here.

2.3 Consultation with experts

The consultation with experts completes the research on the explanations of a selected expert for New Media and Media Pedagogy. Central questions of the project have been discussed. The following results will be presented as an example.

- What is the current meaning of “Visual Learning”?

At present we are dealing with a paradigm shift – the so-called “Iconic Turn”.
We are in a transformation process in which the classification for crucial learning and perception processes are no longer carried out in the conventional way based on the text or the language but rather on the basis of images. In image culture and in image perception there is potential as well as chances for learning, for acquisition of reality.
That is why it is important to convey image competence to children, to the youth and to adults in order to enable them to deal with images, to understand these and to use them in everyday life.

- What does neuroscience and image science contribute to the subject?

The perception in the brain takes place on three different levels:

1. The perception occurs phylogenetically. I.e. there are patterns that are socio culturally anchored; these have been anchored in societies over the centuries via the limbic system. Archetypes have been developed which made a significant contribution in the interpretation of the world and reality.
2. There are society-related perceptual patterns which are due to socio-cultural experiences and which are therefore clearly a consequence of socialization – to the linkage of evaluation and attitudes with image worlds.
3. Finally the biographical level has to be taken into consideration attributive to the fact that specific matters can again be seen differently.

I.e. the brain acts on several levels and it therefore perceives objects as diversely. Since different interpretation possibilities become visible on the basis of this triple level it is necessary to be aware of the fact that objects and images can be ambiguously perceived.

- What are the conditions of visual learning?

The condition of visual learning requires the willingness of ambiguity. It is necessary and does make sense to include real world experiences. Experience shows that the actual thought and conversion process cannot work as planned but occur in activities such as driving a car, bathing or walking. In order to enable visual learning a pleasant environment can be set up whereas visual and active methods can be used.

- Which qualifications do tutors need to boost visual learning? The tutors should have fundamental knowledge of respective neuroscience results and in addition they should have further knowledge of the basic principles of Gestalt psychology and the laws of perception. Furthermore it is necessary to deal with aspects of image design because image design is important in all esthetical matters. After all, tutors should have an overview of the most important visual methods and should have experienced themselves.
- Which competences account for visual competence ?

Visual competence is closely connected to media competence. The following aspects are relevant:

- One owns seeing, own perception is an expression of internal images. Internal and external images of the perceiving individual are in a context called active imagination.
- Reflexive competence refers to understanding images, recognizing the image and analysing which intention an image has.
- Action orientated competence infers dealing with different kinds of perception dimensions, the design and realization, done with the help of specific examples.

- Vireal competence refers to the fact that we act in virtual realities and therefore better learn to understand the combination of virtuality and reality.
- Recommendation for the project

The importance of visual learning should be given better consideration. It can be assumed that in future visual learning will have a similar significance as that of literacy campaigns. One who learns visually has better chances because visual learners are able to grasp connections more quickly and more unerringly

3 About the development of Visual Learning in Germany

3.1 Regarding the term Visual Learning

If one looks at the current literature on the subject “Visual Learning” and at the respective experts it becomes clear that it is frequently worked on in an interdisciplinary manner and this has a significant impact on respectively understanding the term. The meaning thus depends on the “direction” from which the subject is viewed.

The most important meaning of “Visual learning” is provided by the visual psycho physics: visual learning is the recognition of objects, patterns, movement and first sight colour viewing without consideration of cognitive psychology aspects. For some time, information processing of the central content of cognition psychological science has been regarded as an essential part of the learning process. In cognition psychology attempts at object recognition have been developed in the 1960s and 1970s. However, they were restricted to the “schematic depiction of postulated processing procedures”. If thinking, acting and planning are regarded as active information processing then in the context of object recognition the ability of classification is brought into the focus of interest: “perceived objects are treated as an equivalent according to their similarity” (Jüttner P.1-2)
So far regarding the basic meaning of the term. In the context of this expert’s report the visual psycho physics is not taken into account in detail because it is not of prime importance for the project context. What has become established as “image science” offers an ideal context for scientific research on the subject visual learning. Interdisciplinarity is hereby almost a prerequisite for participation. It presents e.g. the “Virtual Institute of Image Science” (Virtuelles Institut für Bildwissenschaft) on the internet under the category “Centre for Interdisciplinary Image Science” (Zentrum für interdisziplinäre Bildwissenschaft) (www.ViB.org).

Certainly, relevant aspects for the project context can be classified and found under the generic term image science. “Images refer to symbols which are close to perception” according to the thesis of Klaus Sachs Hombach. Thus images have a significant character of reference.
On the other hand their interpretation is relative to the perception standard. Close to perception infers that the meaning to be communicated through the image results from the structure of the image (the symbol) itself. “ We use pictures according to this thesis in order to visually depict single aspects of real and fictitious objects and/or facts, i.e. to make them visible (Sachs Hombach, in Huber, Lockemann, Scheibel (ed.) 2003, P. 19-21).
Edelmann refers to the fact that images are stored less due to their details and more so because of their meaning. Moreover image memory has a far greater capacity than verbal performance (Edelmann, P. 167). For this graphic coding, suitable examples must be found and given preparation for the “didactic connection of the project”.

3.2 Visual Learning – Development in Germany

Initially the main interest of all scientific activities focused on psychophysics and the neuro-physiological science’s results about visual learning. The development of social-cognitive psychology heads the focus on processes of perception in connection with individual behaviour and was enlarged hence, whereas the subject still remained part of the work of psychologists.
Especially since computers are almost part of everyday life, working with a display screen became a routine task. This makes the establishment of an image science therefore indispensable. There are numerous application references.
Integration into pedagogical contents occurred through media-pedagogy. The latter gained importance especially since the dissemination of TV-Sets took place. For example the now well known book titled “The disappearing childhood” (“Das Verschwinden der Kindheit”) which was contributed by Neil Postman. The basis for research in educational science has been enlarged through the successful arrival of e-learning in general education.
As far as the actual situation goes, it can be said that contributions with the highest relevancy are to be found within image-sciences. A field of science which is about to be established and to evolve on a new scientific path is currently still characterized in an interdisciplinary manner. What Klaus Sachs-Hombach postulated (see section research – results summarized) seems to become reality through the foundation “Virtuelles Institut für Bildwissenschaft” (“Virtual Institute of Image-Sciences”) http://www.bildwissenschaft.org/VIB/). It is important to state that at this stage in Germany

there are very few practical examples to refer to. Institutions or initiatives are also rarely spread as yet. The topic „visual learning“ is still marginally dealt with by related disciplines. There is also still a big niche that needs to be captured by means of a discipline that deals explicitly with “visual learning”.
In the following selected examples referring to the field of visual literacy, media pedagogic, multi media learning and finally image science all constitute the state of affairs of visual learning in Germany.

Media pedagogic

At the outset of media pedagogic the emergence of new image media has initially been critically illustrated in order to protect mainly children from there influences. From today´s point of view the advantage of the media influenced by the display screen is primarily regarded. According to Lothar Mikos essay "Visuelle Kompetenz und Bilderfahrung als Element der Sozialisation" ("Visual Competence and Image Experience as Element of Socialization") media competence as a key term emerges from media pedagogic. Mikos confirms that media competence was specifically viewed according to the respective generation and media therefore plays an important role in identity development (Mikos, 1999, p. 13).
With the following thesis Mikos mentions an important indication about the project content: "images can be used for communication because "ideas" beyond spoken and written language can be communicated (Mikos, 1999, P. 14). This kind of communication enables children and other groups to distinguish themselves from adults and and/or other groups.
.

Multi media learning

The wide acceptance and especially the use of display screen-based teaching and learning constellations have been achieved since the enormous spreading of personal computers. The creation of mental models and understanding of diagrams is supported and furthered by the use of image media. The recognition and identification of graphic components are so-called preattentive processes. Graphics and diagrams must thus be able to construct special cognitive schemes (Schnotz, P. 91-95).
In his contribution "Wissenserwerb mit Diagrammen und Texten"
("Knowledge acquisition with the help of diagrams and Texts") (Schnotz, P. 95) Wolfgang Schnotz makes the following claim “The ability to understand diagrams is a special art technique which has to be learned".

Visual literacy

This specific cultural method of recognizing and understanding pictures, graphics, diagrams, symbols etc. In other words, all visually displayed issues not based on text can be referred to as “visual literacy”. Youn - Ju Ko Hoang has created a definition for this term which is composed of seven different non-German definitions: “”Visual Literacy” is the acquired ability for understanding, recognising, interpreting visual products or messages of various media; namely how to use, analyse, evaluate and self-develop them in a sensuous way within social reality and to be able to communicate them to others” (Hoang, P. 11-12). According to M.E. this definition is very suitable. It reflects the facets in their abundance as to how one can approach the topic and it analogically confirms the above mentioned interdisciplinarity of it. He furthermore divides “Visual Literacy” into five components. The ‘conscious perception’, the critical reception, the reasonable use, the active participation and the support of creativity (Hoang, p. 26-28). These terms are to be essentially understood literally and are useful for characterizing the term “Visual Literacy“ while such also show a clear orientation via media-pedagogy. Hoang describes “Visual Literacy“ as an ability of which individual messages should be dealt with based on diverse levels of experience“. “If this special message has been learnt by practical use of it, the perception ability, critique, use as well as creativity could be better supported” (Hoang, p. 28).

Image science

Klaus Sachs-Hombach speaks about the creation of the Virtual Institute for Image-Science from January 2004 in his essay “Bildwissenschaft als interdisziplinäres Unternehmen“Pictorial (“Science as an interdisciplinary act”). He describes the reason for the interdisciplinarity as follows: “The several disciplines […] have an image relevant scientific field, which is of marginal importance for the origin-science (mother-science)” (Sachs-Hombach, 2004, P. 3). According to M.E. this is a very well founded reason and it contains the decisive factor of the project “visual learning” belonging to image-science.
He rightly compares the development of image-science with the ‘linguistic turn’ and calls it “visualistic turn’”(Sachs-Hombach, 2004, P. 4)

3.3 Selected examples referring to publications, professional articles, projects, experts and institutions

Using the detailed research which is described above, many data and sources of information have been found. In this section selected examples will be presented. They will be recorded in the following order: Literature (incl. professional articles), scientific research projects, practical projects, experts and institutions. Furthermore the terms that were used in helping

to find them will be named at the beginning of the section. In most cases quotes from the summary will be made in order to present each article separately so as to create an image which is less distorted as possible. In addition the variety of subject related reference options shall be expressed with this kind of presentation. The connection between *some selected* contributions with the project content "visual learning" as well as relevant questions will be explained in the next two sections.

3.3.1 Literature

Visual learning

"Visual learning – acquisition and application of image categorical knowledge" by Martin Jüttner: "To see an image and to perceive what is therein depicted as *something* requires the combination of direct sensorial perception and knowledge. This image understanding requires cognitive processes of completion, interpretation and reinterpretation of information. It is an acquired ability of a high degree and as such of utmost practical importance for the qualification and further training measures in professional disciplines." (Jüttner, 2003, Umschlag). Jüttner basically focuses on psycho physics, the recognition of objects, and he continues with the qualification of recognized objects as well as cognitive processes which take place simultaneously. Nine pilot experiments are documented. The language and contents are kept very technical and the results are therefore only basically relevant for the given project context.

"Individual modality preferences in the understanding of texts. Preferences for auditive or visual language processing in different sections of populations" by Kürschner, Christian; Schnotz, Wolfgang; Eid, Hauck, Georg. "Due to the development of multi media teaching and information supply there is often the possibility to visually offer linguistic information in the form of a reading text or as auditory i.e. as an audio text. Since the planning of a respective learning environment requires general psychological features as well as individual characteristics of the human information process, general differences between hearing and reading understanding and individual preferences have to be taken into account with regard to the respective modality of presentation." (From the synopsis on research taken from the PSYNDEX-Data Base, please also see bibliography)

A fleeting glance at frozen images: Regarding the superficial process of pedagogical illustrations by Bernd Weidenmann: The special susceptibility to pedagogical illustrations for an inappropriate process (careless mistakes) by the teacher is to be discussed. Three pedagogical strategies to prevent careless mistakes will be outlined:

(1) a careful design of the image and a close relation to the text
(2) a process supporting pedagogical situation (instruction, exercise related)
(3) a systematic support of the competence concerning the effective treatment of images.
(From the contents according to the FIS-Data Base)

Visual competence

“Image/Media/Knowledge. Visual competence in the media age”, edited by Hans Dieter Huber, Bettina Lockemann und Michael Scheibel
“What does image competence mean in the digital age? How does art education react to the change in the media landscape? How is visual knowledge organized in the form of networking? The question regarding visuality, for skills and competences in a rapidly changing society caused by digital revolution was the subject of a conference within the pilot scheme *visual competence in the media age* that took place at the “Staatliche Akademie der Bildenden Künste Stuttgart” (National Academy of Graphic Arts Stuttgart).
This volume contains the interdisciplinary basics for visual competence in the media age as produced in the course of the conference. Experts, scientists, designers and artists from field of media theory, communication science, art didactic, media pedagogic, brain research, memory research, knowledge research, art history, image science, web art and architecture are undertaking an exchange program which goes beyond the borders of their specialised fields”.

Visual performance, Hans Dieter Huber:
What does visual competence mean? The term competence is about the theoretical, unobserved term in the context of certain theories on competence. Whereas competence infers to a certain quality being attributed to a person by an observer of secondary order, the antonym performance refers to public perceptible behaviour.” “If one requests the term visual competence it is necessary to point to different connections or contexts of use of the term.” (Quoted from the contents onP.1)

“Aesthetical experience and visual competence: regarding the extension of discursive media competence about presentative elements” Lothar Mikos
“Images have iconic and symbolic qualities. To be able to distinguish between these two qualities demands an essential characteristic of a skill which could be described as visual

competence and which precedes media competence because it is important for non medial experiences." (Quoted from the contents, P. 1)

Visual competence and image experiences as an element of socialization",
Lothar Mikos

"Identity work with the help of medial texts is a necessity in a more and more differentiated society because only media can mediate between different areas of life. That is why not only social experiences of the real world are important for the reconstruction of ones own biography and for the development of life conceptions but "reading experiences" in the broadest sense as well as receptive experiences and that what has been acquired all become more and more important in the inter-medial relations of popular culture. And this experience is more than ever of visual nature." (Quoted from the contents, P. 14)

Image science

"Image science as an interdisciplinary undertaking" Klaus Sachs Hombach:

"It is widely beyond controversy that images have an enormous (and increasing) influence on very different fields in society. That has always been the case regarding religion, art and politics; however, this holds true meanwhile for all kind of social fields as well as for the economy and science. It is however still in dispute as to how this influence should be evaluated. (Quoted from the contents on P. 1)

Visual literacy

"Mediation of "visual literacy" by computer animation in Art lessons" by

Youn-Ju Ko Hoang

"…the available survey aims at the provision of theoretical and practical foundations for mediation of "visual literacy" in the context of media pedagogic, here the emphasis is on the aspect of computer animation. […] The conscious promotion of Visual Literacy is still not sufficiently taken into account."

(Quoted from the initial remarks, P. 4)

“Visual Literacy provides the starting point for the professional use of visual media. In those society oriented areas of life that are ruled more and more by visual media; visual literacy is therefore an essential component of media competence in today’s world and that in the broadest sense of media pedagogic. (Quoted from the contents, p. 18)

Visual language

“Visual languages”by Esim Can:

“Is appropriate design a visual language? Are there guidelines or is beauty the observers matter of taste? How can a designer produce a feeling by a visitor. Can familiarity, curiosity, anxiety, happiness be switched on and off as somebody wishes? (From the content P.1)

3.3.2 Practical plans and projects

Scientific research is completed and supported by practical projects which are integrated in the research process. Three examples will be cited here: The pilot project “Visual competence in the media age”, the EU-Project “seeing is learnable” from the Art Schol Liechtenstein and the “BlickLabor” (Glance Laboratory) in Freiburg. Unfortunately more examples for this expert's report could not be found with regard to the context of this research. It would be desirable to provide more practical examples in future.

Pilot project: Visual competence in the media age (http://www.vk.abk-stuttgart.de/ last access 04.07.2008)

A BLK-Project, supported within the programme “Kulturelle Bildung im Medienzeitalter” (Cultural Education in the Media Age) 2000-2004. Project team Prof. Dr. Hans Dieter Huber, Bettina Lockemann, Michael Scheibel. Target of the project was to establish the internet as a medium for Art lessons.

The result of the project was based among others on three publications, one of them – Visuelle Kompetenz im Medienzeitalter – (“Visual competence in the media age”) will be

taken into account. As a result a large variety of material has been additionally developed, which to a great extent can be found on the internet. This “learning material” consisting of a syllabus for a basic advanced vocational training course for teachers. Three events took place. One of the above mentioned publications edited as a conference transcript. Texts from individual persons on the project team etc.

“Seeing is learnable” http://www.sehen-ist-lernbar-.li/main.htm (last access, 07.04.2008)

This project is about the manipulative ability of the individuals by the aspects of the world, which consists of a large amount of images and visual impressions caught via eyesight. Along with several European Countries a book of pictures, a text book and two CD-ROMs in the context of the Socrates-Grundtvig - Project have been produced: “For example: “grammar of seeing”, ”seeing by questions”, “seeing without hearing” as well as informal kinds of learning in Art huts or view boxes,…” (ibid.)

The project was coordinated by the Art School of Liechtenstein and was completed in September 2004. A follow-up project on the same subject started in the beginning of 2006 and a training course will be developed.

BlickLabor: http://www.blicklabor.de/index.htm (last access, 07.04.2008)

The BlickLabor is an information centre of the University of Freiburg. It offers advice on a theoretical and practical related level and is headlined: “Help in learning difficulties”.

- Research and advice for learning difficulties in combination with suspected perception and viewing difficulties.
- Training equipment which helps to catch up on development backlogs is provided where needed
- Regarding the diagnosis of reading and writing difficulties/dyslexia and/or difficulties in calculating/dyscalculia we can conduct several neuropsychological tests (i.e. reading, writing, IQ, concentration, mathematical efficiency tests)
- Advanced vocational training for teachers and therapists

The therapy-level is primarily covered by the provision of results and by details of related studies:

http://www.optomotorik.de/studien/index.htm (last access, 07.04.2008)

3.3.3 Experts

The experts listed in this overview have been selected in relation to the research. Here only their names and main activities are being mentioned. Their contributions to the subject will be mentioned and brought into context at a later stage.

Prof. Dr. Wolfgang Schnotz, University of Landau

Current research subjects.

1 Cognitive psychological basic principles of knowledge requirement via multimedia

2 Strategies of visualization and visual learning

3 Understanding texts and graphics

4 Change of knowledge (conceptual change)

From http://lima.uni-landau.de/mitarbeiter/schnotz.htm

Prof. Dr. Hans Dieter Huber

…" Professor of Contemporary Art History, Aesthetics and Art Theory at the National Academy of Graphic Art Stuttgart since October 1999. His publications are mainly about Contemporary Art and theoretical Art, among others, publications regarding Karl Schmidt-Rottluff, Edvard Munch, Joseph Beuys, Bruce Naumann, Dan Graham, web art and also media theory and media history.

From http://www.abk-stuutgart.de/kg/personen/huber.html

Birgit Gaedik, ZE Sprachenzentrum

Emphasis:

1 German as foreign language

2 **Learning techniques:** Strategies and techniques which are an important prerequisite for learning German as a foreign language.

3 **Visual learning:** methodical and didactic use of different images for the *German as a foreign language* course as stimulation for communication.

From the expert database of the Humboldt University Berlin. http://www.hu-berlin.de/presse/experten_db7personen.php?EXP_ID=50114

Martin Jüttner, Privat Lecturer (Med. Psychology, Cognitive Science)

Fields of activities:

1 Visual learning and classification

2 Object recognition

3 Cognitive processes pertaining to eye movements

4 Experimental aesthetics

From http://lrz-muenchen.de/-martin_Juttner/

Prof. Dr. Franz-Josef Röll, Fachhochschule Darmstadt

Fields of activities:

1 New media

2 Media pedagogic

3 Theory and concepts for youth work

4 E-learning and content-management

From: http://www.fbs.h-da.de/HOMEPAGES/Roell/index.htm

3.3.4 Institutions

The researching institutes dealing with the subject context achieved less results in online research. The following listings are the ones believed to be relevant for the subject according to the authors' opinion. Due to the interdisciplinarity that has already been mentioned in several sections, and which significantly classifies the field of Image Science or the subject "visual learning" there are a few institutes working explicitly on the subject.

A very suitable example, however, is the "Virtuelle Institut für Bildwissenschaft" ("Virtual Institute for Image Science") VIB. The site is still under construction and can be found at http://www.bildwissenschaft.org/VIB/ (last access 07.04.2008)

“The Virtual Institute for Image science is an electronic platform” on which scientists of different disciplines have gathered together in order to co-ordinate their interdisciplinary image-science projects” (ibid.)

kommunikationslotsen
ZUKUNFT DENKEN. ZUKUNFT PLANEN. IM GANZEN SYSTEM.

One “institution” of applied practice are the so-called communication guides. (http://www.kommunikationslotsen.de/lotse2/?language=en).

They mainly organize and accompany processes of large groups in companies i.e. on the basis of the “World Café” concept .The results will be presented to the participants in form of large-format graphics which will visualize the course of the event as well as content and conclusion.

In accordance with the motto (changing with images) advanced vocational trainings pertaining to the subject “Visual facilitation” will be offered. Here participants of the workshop can learn easy methods concerning graphic depiction of situations of the everyday life of tutors.

Master Courses “Multimedia-Didactic” at the University of Erlangen

From the description: “The Master Course “Multimedia-Didactic” will be established for graduates of the teacher training along with similar courses. Its aim is to offer specific education to graduates after the first or second teachers’ training examination or to those

with a certificate with similar content and to award them the degree “Master in Multimedia” after successful completion of studies.” In the curriculum of this study course an activity titled “visual learning” is planned.

http://www.ewf.uni-erlangen.de/masterstudiengang/

4. Conclusions and recommendations

The interest in images and the importance of images is discussed on a wide level. The paradigm shift towards image culture is described with the term ***I****conic Turn*. If one pays intensive attention to visual learning it soon becomes clear that it is a complex subject. Different disciplines are occupied with it and each of them contributes continuative ideas. One problem is that so far, the single results and discourses are insufficiently linked to each other. Here there is a significant need for action; integrative and interdisciplinary approaches are necessary in order to develop the visual competences which are today gaining more and more importance.

It is interesting for the project as to how visual learning can support learning processes and be reasonably applied in further education. The learners – especially the so-called less qualified and people with learning and reading difficulties – should be individually supported. Thus, mainly visual methods and also basic knowledge of the subject complex “visual learning” shall be communicated in the qualification concept for teachers which is to be developed.

5. List of references

Publications

Huber, Hans Dieter; Lockemann, Bettina; Scheibel, Michael (ed..): „Bild/Medien/Wissen. Visuelle Kompetenz im Medienzeitalter“, München 2002

Jüttner, Martin: „Visuelles Lernen – Erwerb und Anwenden bildkategorialen Wissens“. Lengerich 2003

Postman, Neil: „Das Verschwinden der Kindheit“. Frankfurt am Main 1983

Röll, Franz Josef: Pädagogik der Navigation. München 2003

Röll, Franz Josef: Mythen und Symbole in populären Medien. Der wahrnehmungsorientierte Ansatz in der Medienpädagogik. Frankfurt am Main 1998

Schnotz, Wolfgang: „Wissenserwerb mit Diagrammen und Texten“ in Issing, Ludwig, J.; Klimsa, Paul: „Information und Lernen mit Multimedia“. Weinheim 1995.

Frederic Vester (1975/2001): Denken, Lesen, Vergessen, Neuausgabe, München 1998/2001

Professional essays from journals and the Internet

Felder, Richard http://www.ncsu.edu/felder-public/RMF.html (last access, 07.04.2008)

Stangl, Werner
http://www.stangl-taller.at/ARBEITSBLAETTER/LERNEN/LernstileTheorien.shtml (last access, 07.04.2008)

Sachs-Hombach, Klaus: „Bildwissenschaft als interdisziplinäres Unternehmen“, 22.01.2004
http://hsozkult.geschichte.hu-berlin.de/forum/id=372&type=diskussionen (last access, 07.04.2008)

Lothar Mikos:
„Ästhetische Erfahrung und visuelle Kompetenz: Zur Erweiterung der diskursiven Medienkompetenz um präsentative Elemente“, 17.3.2000
http://www.medienpaed.com/00-1/mikos1.pdf (last access, 07.04.2008)

Visuelle Kompetenz und Bilderfahrungen als Element der Sozialisation, in Medien Impulse Heft Nr. 27 03.1999
http://www.mediamanual.at/mediamanual/themen/impuls08.php (last access, 07.04.2008)

Huber, Hans Dieter: Visuelle Performativität
http://www.hgb-leipzig.de/ARTNINE/huber/aufsaetze/performativitaet.html (last access, 07.04.2008)
erschienen in: Hans Dieter Huber, Bettina Lockemann, Michael Scheibel: *Visuelle Netze. Wissensräume in der Kunst*. Ostfildern-Ruit: HatjeCantz Verlag 2004, S. 31-38

Esim Can: “Visuelle Sprachen” http://www.drweb.de/struktur/visuelle_sprachen.shtml, (last access, 07.04.2008)

Youn-Ju Ko Hoang:
Vermittlung von "Visual Literacy" durch Computeranimation im Kunstunterricht
http://www.diss.fu-berlin.de/2000/137/ (last access, 29.03.06)

Der Masterstudiengang "Multimedia-Didaktik"
http://www.ewf.uni-erlangen.de/masterstudiengang/infos/konzept.pdf (last access, 07.04.2008)

Weidenmann, Bernd: „Der flüchtige Blick beim stehenden Bild: Zur oberflächlichen Verarbeitung von pädagogischen Illustrationen“; Unterrichtswissenschaft, 1988, 16 (3), 43-57

URLs:

ViB http://www.bildwissenschaft.org/ (last access, 07.04.2008)

Masterstudiengang Multimedia-Didaktik
http://www.ewf.uni-erlangen.de/masterstudiengang/infos/konzept.html (last access, 07.04.2008)

Search engines and Web-OPACs:

Deutsches Instituts für Erwachsenenbildung – DIE, http://mail.die-bonn.de/webopac/index.asp?nextpage=&time=22:28:39 (last access, 07.04.2008)

Hochschulbibliothekszentrum des Landes Nordrhein-Westfalen,
http://www.hbz-nrw.de/ (last access, 07.04.2008)

Metasuchmaschine der Technischen Universität Karlsruhe

http://www.ubka.uni-karlsruhe.de/kvk.html (last access, 07.04.2008)

Bayrische Staatsbibliothek, Angaben über Bibliotheksverbünde
http://www.bib-bvb.de/diverses.htm (last access, 07.04.2008)