

Authors:**Prof. Dr. M.-A. Bäuml-Rossnagl, Andrea König, Sabine Niedermaier****PEG – a game to acquire educational competence for primary school education****“the game of life is the way of learning educational abilities”
Bäuml-Roßnagl****Introduction : learning by playing****PEG : Creation - conception – game design****Game process and the didactic intention****Intention of PEG and the didactic effects on the university****Game characteristics in the primary school context –
general and PEG-related****Conclusion : The human factor – multidimensional effects****Authors****References****Acknowledgements**

Introduction : learning by playing

Have you ever watched children playing? Maybe you have even tried to reach them in vain while they were completely lost in their game. Games can create a fascination that not only appeals to children or adolescents but even adults cannot withstand their attraction. So why not use this attraction to make university studies more stimulating and scientific work more transparent to laity and first-year students? In the 2002 summer term a seminar of seven students headed by Prof. Dr. Maria-Anna Bäuml-Roßnagl asked themselves the same question and developed an educational game for students of primary education, teachers and interested parents. The aim was to find a way that would make it easier for novices to this field of study to gain a first insight into key issues as well as getting a chance to discuss newly gained knowledge with fellow students. Therefore, PEG complies with demands on current teacher education not to impart dead knowledge to students but integrating them into the improvement of methods. As a result, students are encouraged to engage in their studies more deeply and to build up psychologically useful networks of personally relevant information that are consequently converted into active knowledge. (cf. Kriz 2003, 504 f)

Primary school children have the same aspiration for a holistic human identity; the design of PEG – especially the picture of “whole human being” – symbolizes the different dimensions of children and university students. The process of didactically organized learning and practical education must intend the balance of body and mind, heart and intellect as “education is deliberate animation” – [“Bildung ist bewusste Beseeligung”] (Oskar Maria Graf). Our predominant learning culture, which produces so-called inert knowledge, can be characterized as abstract, artificially systematized, and scarcely application oriented. This knowledge does not correspond to the complexity and the interconnection of the various fields of knowledge and application of our daily reality [...] experiential learning creates a learning environment in which people either make concrete experiences in real life or in a virtual environment, such as by playing a game.” (cf. Kriz 2003, 504)

Playing PEG, the transfer of experiences from the designed game to the theoretical knowledge system of education in the primary school and the individual student is a symbolic process. It leads to a deeper understanding of the structure of our educational system as well as the daily practice of teachers, parents and pupils (c.f. Bäuml-Roßnagl M.-A. und Mitarb.,2004)

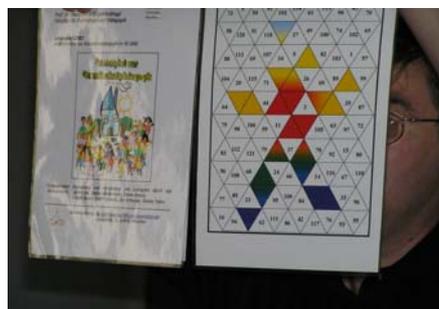
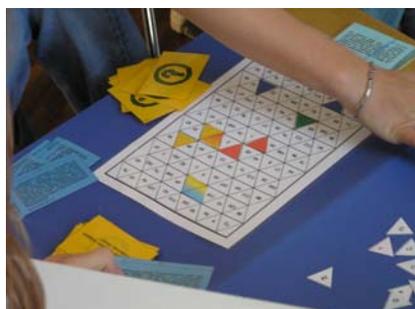
Having been successfully adopted by several groups of students since, the game is currently being translated into English to make it available to a larger audience and to be presented at the ISAGA congress hosted by the Ludwig Maximilians University (LMU) of Munich in September 2004.

PEG : Creation - conception – game design

The game’s structure is intended to encourage the players not to learn by rote but to enjoy the learning experience by discussing the right and wrong of possible answers, thus enabling the players to experience modern teaching methods themselves. Moreover, it helps students to transform theoretical knowledge into active awareness of educational matters, thus supplying theory and practice of educational competence for (future) teachers and creating the necessary interaction for building up a network of learning processes. Revolving around the education of the “whole child”, it also allows for multiple intelligence theories as well as different learning styles. Thus, the game’s learning method not only supports thought, emotion and creativity but creates a special group experience and a better learning motivation

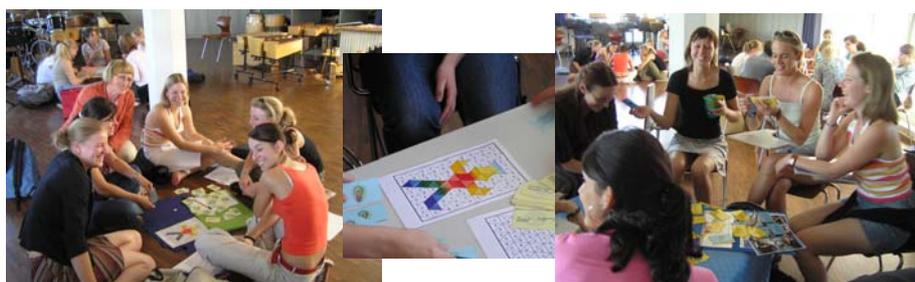
as well. Thereby, it meets the standards of modern teacher education and shows ways of having fun while learning or teaching.

PARTLY SOLVED GAME BOARD



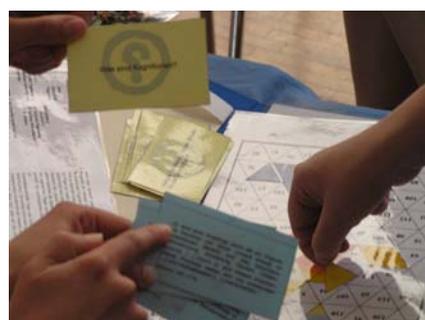
The game can be played as a short and a long version. Accordingly it consists of two game boards, two stacks of question cards (light and dark yellow) and two stacks of answer cards (light and dark blue). Coloured triangular jigsaw pieces function as representatives for solved questions on the board. Placed correctly, these pieces add up to the picture of the “whole child”.

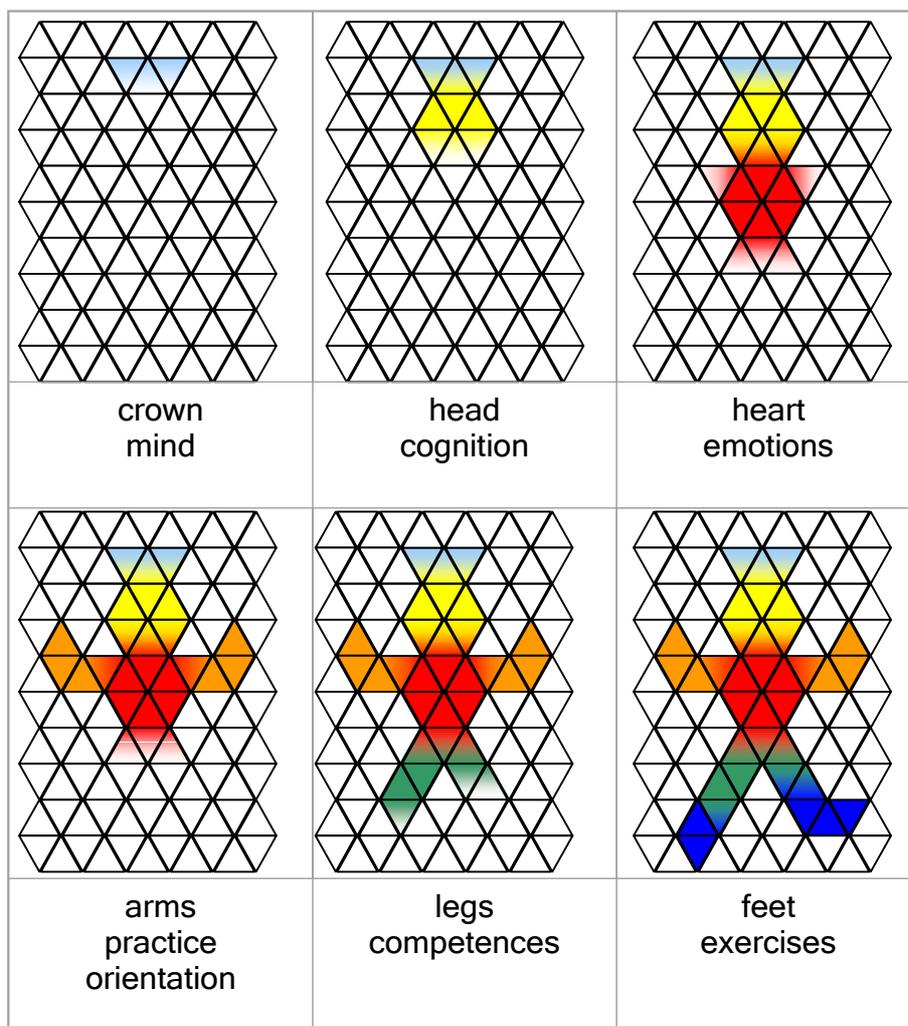
“THE GAME OF LIFE IS THE WAY OF LEARNING EDUCATIONAL ABILITIES”



Before the game, both answer and question cards are shuffled, the question cards are then put into an envelope, and the answer cards distributed to the players. The player with the most answer cards begins by reading the first question. The aim of the game is to find a matching answer to each question. Answers to the questions consist of quotations from common scientific literature that must be related to the questions by discussions among the participants.

EXEMPLARY ILLUSTRATION OF THE GAME DESIGN

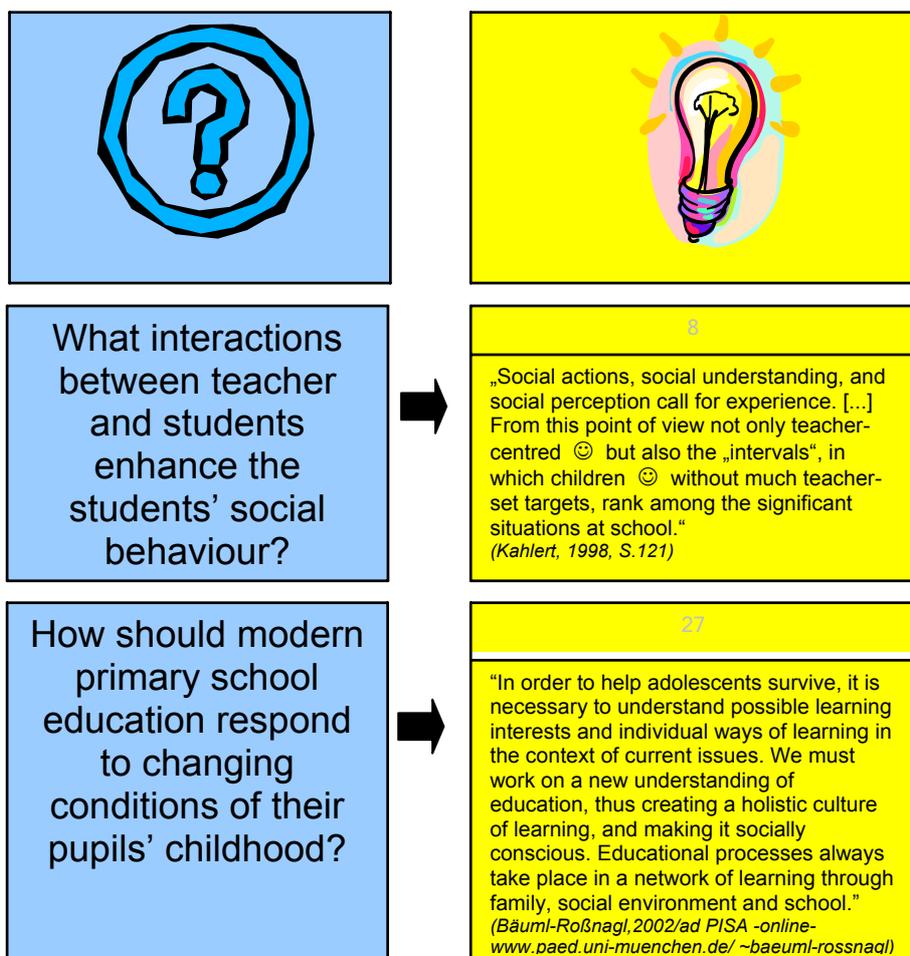




The game process and the didactic intention

PEG was first intended to enable students of primary school education to gain a basic insight into the various fields of study relevant to modern primary education. Apart from that, they experience one possible method of motivating teaching themselves, understand it better and can later implement it more easily in their own teaching. Besides, it has immediate use for students in view of their state examination at the end of their university studies. The often confusing mass of information, of scientific work and research complicates exam preparations. By introducing important key issues and choosing from the large amount of scientific literature available, PEG provides better orientation for students and lays a solid basis for further in-depth studies and exam preparation.

EXEMPLARY QUESTION-ANSWER-CARDS



The chosen key issues deal with exemplary problems concerning

- ☞ teaching and adequate methods,
- ☞ aims and key qualifications pupils should achieve,
- ☞ functions the school of today has to take on and special problems it has to face,
- ☞ pedagogical and psychological research results.

For example, questions of adequate teaching methods revolve around the role of rituals; learning conditions enhancing the children's moral development; adequate responses to changed childhood conditions; the necessity of differentiation, to name but a few.

Among the aims and key qualifications necessary to impart to the children, are questions such as social competence; the importance of explorative learning; enabling children to work and act independently; the role of psychomotor education are relevant, for example.

Issues that could be associated with functions or special problems that have to be dealt with are

- ☞ the continuing media development,
- ☞ the lack of bodily exercise of many school children,
- ☞ odd and increasingly disturbing behaviour of some children,
- ☞ the school's function as mediator between high social and educational requirements, and children's natural resources that are exposed to a continually changing environment.

Examples of pedagogical and psychological research are the importance of the learning environment; social education and the increasing heterogeneity in classes; the necessity of an orientation towards each child; the role of discipline; psychological issues such as cognition, self-concept or the acquisition of knowledge through cognitive networking.

Intention of PEG and the didactic effects on the university

But why use games for university students? Does it make sense to use games to enhance learning on this higher level, too? There is clearly a positive answer to this question as will be mentioned below and is also stated by Kriz (2003).

He agrees with the fact that university learning too often encompasses solely theoretical, “inert” knowledge and not enough active, transferable knowledge. (Kriz 2003, pp 504) Especially for future teachers this fact endangers the later quality of their teaching. After all, how can we teach something (e.g. motivating learning) that we have never learned ourselves?

THEORY
of primary education
in the professional
discussion



PEG
a symbolic model of education
reality through game design and
gaming process



DEBRIEFING
theory and reality aspects
through interactive-theoretical
perspectives and a variety of practice
methods



EVALUATION
attention to important educational
references competences in authentic
educational situations consideration in an
interactive problem-solving environment



The primary educational game (PEG) to be presented in the following is one step towards the “changing of dysfunctional education systems into preferred ones” (Kriz 2003, p 505). Some of the characteristics Kriz names in his essay on gaming simulation are certainly applicable to other types of games (e.g. PEG) as well: For

example, PEG not only refocuses “passive reproduction of inert knowledge to active production of applicable knowledge”, but “designs an appropriate interactive-learning environment” and focuses on problem-oriented learning (Kriz 2003). It provides various contexts and deals with a broad selection of perspectives and methods. Finally, it encompasses interactive learning in its method of problem-solving based on teamwork and discussions among the players.

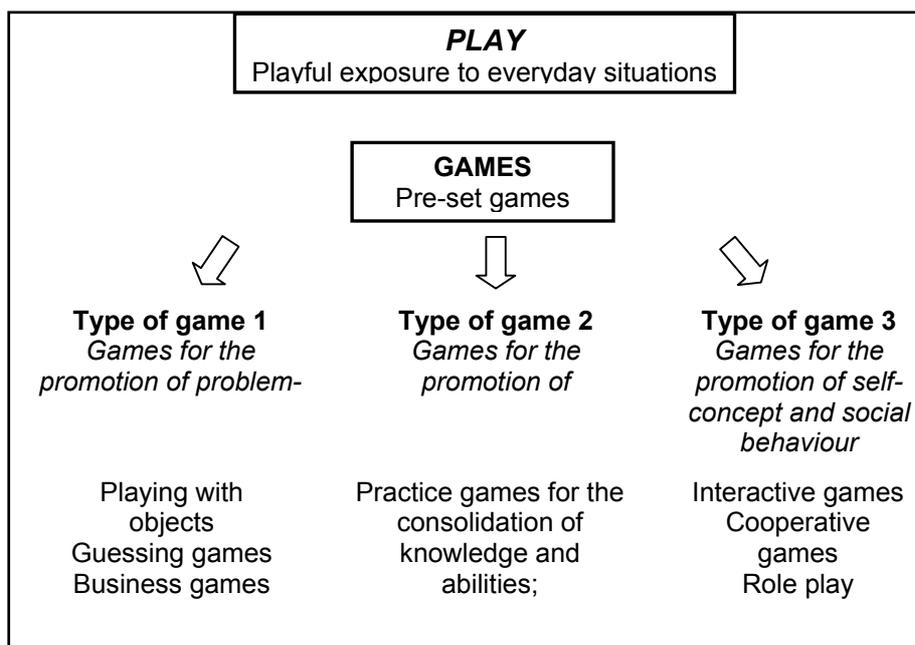
"Participants have the opportunity to settle their own learning goals, construct models of reality, and define game rules. The design process as a self-organizing learning environment helps reveal the communication modes of the group as well as the individual mental models and systems representations of the participating designers. Common values, goals, rules, social representations of reality, and strategies for complex systems management can be mutually shaped."(Kriz, 2003, p. 501)

Game characteristics in the primary school context – general and PEG-related

One can play with a pencil or play a musical instrument; one can play a game of chess or one can play football; Athens is hosting the 2004 Olympic Games and the Royal family enjoys the pleasure of hunting game. And now try to define “game”, a word that is obviously part of our everyday language but occurs in so many different contexts and meanings. We may safely go along with Petillon (2001) who stated that a single commonly acceptable definition is neither possible nor adequate. However, if we narrow the term down, we could follow the careful definition by Huzinga (1956) [in Petillon 2001] who stated that playing was an unsolicited activity that is performed within certain agreed limits of time and space and according to voluntarily accepted but stringent rules; additionally, playing was accompanied by a feeling of eagerness and an awareness of the otherness of the situation different from ordinary life. Nevertheless, it is important to record that most definitions of the word “play” or “game” only contain a list of characteristics that can never be fully applied to the individual case. (cf. Einsiedler 1994 in Petillon 2001) On the other hand, it is possible to name single characteristics for a very narrow context such as a child’s play. Einsiedler specifies four characteristics of which a combination of at least three defines a child’s play: (1) it is intrinsically motivated; (2) it is focused on the playing process rather than the outcome; (3) it goes hand in hand with positive emotions; (4) it has the sense of play-acting that is distinct from real life references.

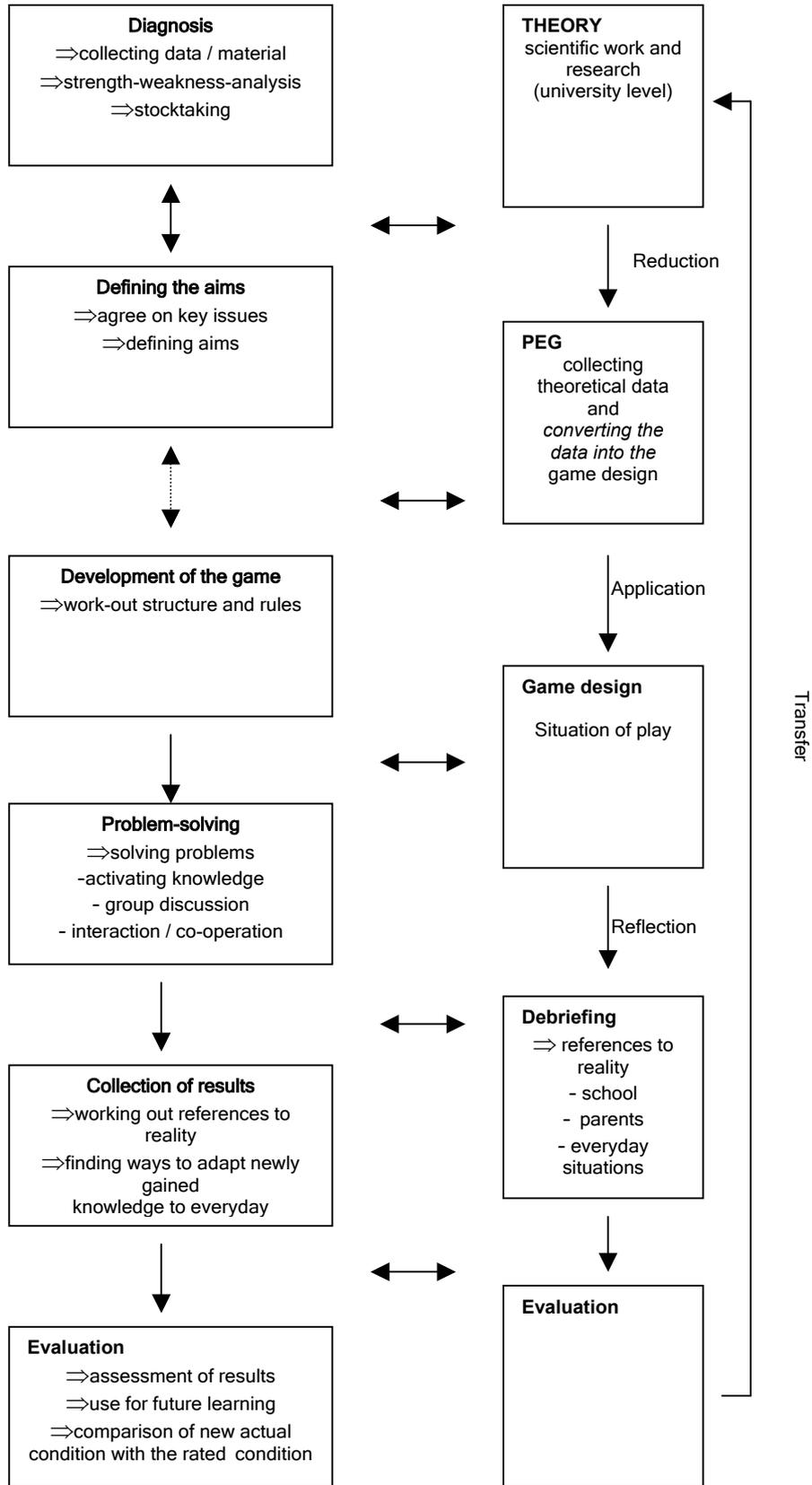
Petillon(2001) makes a further distinction: He distinguishes between “play” as a playful exposure to everyday situations and “games” as pre-set games. These pre-set games being synonymous with the most common understanding of the word “game” can be additionally differentiated into three game types to which different games can consequently be allocated.

Petillon 2001



Thus defined and classified, the question remains of the usefulness of games for learning and the school context. Being used to learning by playing from their early childhood, continuing this learning experience not only comes naturally to primary school children, but also enhances their individual learning success. Moreover, learning by playing diminishes the serious aspect of school learning and pressure, and creates a far greater learning motivation – momentarily and permanently. Furthermore, games that encompass an at least basic amount of physical action help to reduce tension and increase the children’s concentration. Games that require cooperation and interaction are additionally helpful for a class’s social climate, enable children to learn from each other, and can even help them cope with emotional problems. Of course, more advantages could be named but would go beyond the scope of this essay.(cf. Petillon 2001)

“Generally. PEG can be allocated to **game type 1** as it especially activates cognitive abilities and serves the development of problem-solving strategies. More precisely, PEG is a type of game, that puts its players in a pre-set situation with a certain frame of problem specifications. Moreover, PEG can also be allocated to **game type 3** because of its features, which require the participants’ interaction an cooperation. Finally, the game contains characteristics that have practising effects, especially for students preparing for their final state examinations.” (Niedermaier 2004)



**Characteristical stages in the development of PEG
Conceptional design by Andrea König, based on Kriz 2003, p.500**

- **Conclusion : The human factor – multidimensional effects**

In the 21st century mankind and their ambivalences must be taken seriously

The human of rationality is also the human of affectivity.
 The human as a rational being is also a being of insanity.
 Sapiens et demens – rational and frenzied
 Faber et ludens – worker and player
 Empiricus et imaginarius – empirical and imaginative
 Economicus et consumus – economical and lavish
 Prosacus et poeticus – prosaic and poetic
 (cf. Edgar Morin / UNESCO 2001, 72)

These sociological cornerstones disclose important pedagogical problems. In order to help securing the human factor in the globalization of present and future, education must convey orientation guides, in the sense of a corporate identity. The way children and adolescents of today live, what they experience and how they learn, carries fundamental importance for their own future as well as the future of our societies. Education accounts for the acceptance of the social responsibility for the preservation and development of our societal qualities of life. The mesosystem “school” is still considered as a model of acquisition of social status; therefore, the “school-inflicted” lack of true educational competences that bear up to a life-long evaluation can hardly be corrected in the later course of a persons career. (Bäuml-Roßnagl 2002 and cf. 2003)

“From their early childhood on, humans are formed by their cultural imprinting: first by the stamp of the family culture, then by school and later by university and occupation.” (Morin 2001, 35) The deficiency of our acquisition of competences is socially designed - social disparities do also mark the educational shortcomings of modern societies. The acquisition of educational competence is a process - “the game of life is the way of learning educational abilities”

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