

# Towards a Scientific Approach to Prenatal Psychology

## From Twilight to Dialogue

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**Abstract:** History of child-psychology developed along the question how far and in which forms children react different from adults or the children in stages of life, we better know. This way to establish knowledge was and is a handicap for prenatal psychology. For Sigmund Freud the first steps of development have been an 'awesome' life before birth. Others especially Sandor Ferenczi and Otto Rank have developed more specific concepts followed by controversial discussions. The book of an other author, Gustav Hans Graber, "Die Ambivalenz des Kindes" published 1924 by Psychoanalytischer Verlag, Vienna produced nearly no reaction. This will reported and discussed. – Situations changed; in 1971 Graber founded the ISPP. The author, founding member and later president of this society reported how prenatal psychology established a scientific dialogue, overcame problems and became publicity. Concluding he gives an outlook on methodological problems and ways to integrate prenatal psychology into scientific and clinical endeavour as well as in practice of dealing with unborn and newborn.

**Zusammenfassung:** *Pränatale Psychologie als wissenschaftlicher Dialog. Geschichte – Gegenwart – Zukunft.* Das psychologische Verständnis der Kindheit ist vom jeweiligen Selbstverständnis der Erwachsenen und von der Psychologie der bereits bekannten Entwicklungsstufen ausgegangen. Dieser Erkenntnisweg war und ist ein Handikap für die Psychologie der Prä- und Perinatalzeit. Für Sigmund Freud waren diese ersten Entwicklungsstufen ein "unheimliches Leben vor der Geburt". Andere Analytiker, vor allem Sandor Ferenczi und Otto Rank haben differenziertere Konzepte entwickelt, die zu kontroversen Diskussionen geführt haben. Das Buch eines anderen Autors, Gustav Hans Grabers 'Die Ambivalenz des Kindes', das 1924 im Psychoanalytischen Verlag in Wien herausgekommen ist, ist nahezu unbeachtet geblieben. Darüber wird berichtet und die Ursachen diskutiert. – Die Situation änderte sich. 1971 gründete Graber die ISPP. Der Autor des Beitrages

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war Gründungsmitglied und von 1976–1984 Präsident. Probleme der Anfangszeit, die Anfänge eines wissenschaftlichen Dialoges und die zunehmende Verbreitung der Konzepte pränataler Psychologie werden dargestellt. Abschließend wird eine Zusammenfassung methodologischer Probleme Pränataler Psychologie gegeben und Wege aufgezeigt zu ihrer Integration in die wissenschaftliche und klinische Arbeit, wie auch in die praktische Arbeit mit Neugeborenen und Ungeborenen.

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At the end of our century all mass-media will report the dramatic changes in our knowledge about world and space during the last 100 years. May be some will also remember that the inner life of men became more discernible, especially by psychoanalysis. – Will they also reflect the grandiose understanding of our own psychic development from the very beginning, that this century has brought ? – I think they will not. – But why ?

Let's look back to the first half of this century. At that time nearly all scientists thought, psychic life is only beginning after birth. We can remember a characteristic statement by Jaspers (1946):

Die Psychoanalytiker haben die Vorgeschichte des Menschen, das heißt sein Leben vor der bewußten Erinnerung untersucht als eine das ganze spätere Leben begründende und bestimmende Zeit. Gegenstandslos und daher phantastisch sind solche Überlegungen in bezug auf die Embryonalzeit. Wir kennen weder objektive Zeichen eines Seelenlebens des Embryo noch eine Erinnerung daran.

(Psychoanalysts have explored the prehistory of men, which means his life before a conscious remembrance as a time fundamental for the whole later life. Without substance and therefore illusory are such considerations in respect of the embryonic time. We neither know mental life of an embryo nor a remembrance about it.)

Even for pioneers like Anna Freud (1947) discussions on embryonic unconscious seems to be completely crazy. And until the 1970s few textbooks of developmental psychology even described the prenatal period of life and those that did, focused on the physical development of the organism.

But a long time of latency for a new field of research is not specific for our science. A connection to everyday's life also is necessary until an evidence becomes accepted:

In 1842 a mathematician published a theoretical paper in which the light from a moving star was compared with the acoustical phenomenon of a moving source of sound. At this time and also in the next decades nobody thought that this insight will allow a look in the space and become the basis to make a trip to the moon. Even when this trip took place nearly nobody at Salzburg thought that this man, Christian Doppler had been born in our city. This changed since the Doppler effect became important for everybody, used for radar control of airplanes and especial by speed controls by the police. Isn't it true that in a similar way, prenatal psychology for a lot of people seems to be good for living in an ivory-tower. Many students are interested in the contents of lectures only if they are addressed as expectant or future parents, or if they can relate the material to experiences which they have already had.

Not only a symposium of ISPPM shows to us, a broad evidence for such an early remembrance, for objective signs of babies' responds and the importance this has in later life. Now we can clearly see the consistent connection of different aspects and different sciences. A fascinating picture – much more fascinating how all this step by step came from twilight to a clear evidence, more and more for journalists and laymen too – if they go into it. So Katharina Zimmer (1998):

Daß es frühe vorgeburtliche Erlebnisse gibt, die sogar später ins Leben wirkende Einflüsse haben, davon sind eine Reihe von Wissenschaftlern verschiedener Disziplinen überzeugt: nicht nur die Spezialisten der 'Pränatalen Psychologie', sondern auch Kinderärzte, Entwicklungsneurologen und Kinderpsychiater.

(Scientists from various disciplines are convinced that there are prenatal experiences, that have influences on later life: not only the experts of 'Prenatal Psychology', but also Pediatricians, developmental neurologists and childpsychiatrists.)

During the first decades of our century child-psychology developed along the question how far and in which forms children react different than adults, or than children in better known developmental stages do. So models of full-grown-up people became basic in how to think about children. This was and is the way to establish knowledge in developmental psychology and in psychoanalysis.

For Sigmund Freud and therefore for psychoanalysis the root of considerations has been the clinical evidence : behaviour and experience of adults. His grandiose idea has been, that mental problems are based on early stages of development. Hundred years ago 1897 he wrote to his friend Fließ: "Es rückt mir jetzt alles mehr in die erste Lebensperiode bis zu drei Jahren" (Now all moves for me more to the first period of life, up to three years). And three weeks later : "Die Vorzeit von bis zu 1½ Jahren bekommt immer mehr Bedeutung". (The time up to one and a half year becomes more and more significant.) But these earlier times did not find the same systematic attention. So we can understand Freud's statement: "Die Bedeutung der Phantasien und unbewußten Gedanken über das Leben im Mutterleibe habe ich erst spät würdigen gelernt." (The meaning of fantasies and unconscious thoughts on the life in the womb I learned to appreciate very late.) And for the founder of psychoanalysis the first steps of development have been an "awesome" life before birth. – Not the best conditions to start systematic analytic considerations as he did in other contexts.

Freud's Hungarian friend Sándor Ferenczi wrote the first fundamental paper on this topic as early as 1913: "Entwicklungsstufen des Wirklichkeitssinnes" (Developmental stages of the sense for reality):

Beobachtet man aber das sonstige Benehmen des Neugeborenen, so bekommt man den Eindruck, daß es von der unsanften Störung der wunschlosen Ruhe, die es im Mutterleib genoss, durchaus nicht erbaut ist, ja daß es in diese Situation zurückzugelangen sich sehnt. (Observing the behaviour of the newborn leads to the impression, that it is not enthusiastic about the harsh disturbance of the perfect quiet happiness it had in the womb, it is even longing to come back.)

For Ferenczi sleep in later life is "... nothing else than the periodic repeated regression to the stage of hallucinatory omnipotence of the situation in the womb." – This concept has of course consequences for therapy, not regarded at this time.

Some years later Otto Rank in some papers and in his book “Das Trauma der Geburt” (1924) came back to a similar concept.

At the same time, between 1920 and 1924 a young teacher in Switzerland studied Psychology. He made his first training-analysis under his beloved teacher Ernst Schneider a few years earlier. On the basis of Freud’s concepts he developed his own ideas on psychic economy and he was convinced that children have prenatal experiences. They are conscious at birth. Therefore the change of total situation at birth (‘Daseinswechsel’) causes ambivalent feelings and will be of enormous importance for future life. For example one central statement (Graber 1924):

Wir dürfen annehmen, daß im intrauterinen Zustand der Unterschied Objekt – Subjekt noch nicht besteht. Das . . . bedürfnislose Leben des Kindes im intrauterinen Zustand wird gestört durch das furchtbare Schmerzerlebnis des Geburtsaktes. Das Kind *erlebt* diesen krassen von allen Gegensätzen im menschlichen Sein. *Er gibt seinem Seelenleben das Gepräge.*

(We can assume, in intrauterine state the difference between object and subject does not exist. The life characterized by absence of wants . . . become disturbed by the tremendous experience of pain during birth. The child goes *conscious* through this crass difference in human existence. The difference *forms his psychic life.*)

This he pointed out in his thesis at the university of Berne – one of the very first psychoanalytic thesis on a university – He also emphasized the central role of prenatal psychology; not only of the birth, but also in the same context of the prenatal period in the whole length:

Alle unsere wissenschaftlichen und psychotherapeutischen Bemühungen um den Menschen bleiben Stückwerk, wenn wir nicht zur Einsicht vorstoßen und den Mut haben, die Integration des vorgeburtlichen Lebens in die Biographie und Pathographie der Persönlichkeit aufzunehmen.

(All our scientific and psychotherapeutic endeavour on men remain fragments if we do not come to understanding of prenatal life and have the courage to integrate it in the biography and pathography of the personality)

Although he described his considerations as hypothetical, there is no doubt that he had in mind an *active, sensitive child in relation to the environment*. – Later on this conviction became the basis of ISPP.

Looking back, it is interesting, that Graber’s thesis has been printed immediately at the ‘Psychoanalytischer Verlag’ in Vienna with the title ‘Die Ambivalenz des Kindes’. This was in the year of Otto Rank’s ‘Trauma der Geburt’ 1924. And while Rank’s concept was discussed, Graber’s book produced nearly no reaction. This may have two reasons:

The young Swiss teacher was nearly a nobody in psychoanalytic movement, while Rank was wellknown and in the center of organisation. On the other hand the focus of Graber’s book was on traits of personality and their development, together with philosophical considerations and not primary orientated on neurosis.

So these two concepts that developed in the third decade of our century had quite different fates. Rank’s concept caused heavy conflicts within the psychoanalytic movement. Graber’s ideas fell into oblivion. Only the end of both books brought them together; in 1938 the Nazis occupied the ‘Psychoanalytischer Verlag’

in Vienna and these books had been destroyed together with the other psychoanalytic books.

A break with dramatic consequences well known for the life of Otto Rank, – but also dramatic for Hans Graber. Once at the end of the sixties he said very resignedly to me: “For about three decades in prenatal psychology, I have had a study-group with me alone.” – During nearly four decades other important authors, e.g. Winnicott, could not establish an international discussion on prenatal psychology or could not see *at this time* her consistent relevance, like the anatomist Blechschmidt in Germany. Therefore neither consequent researches did take place, nor the application the findings in fields like psychotherapy, gynecology, paediatry, legal regulations and so on.

In the meantime the changes in the western societies, the tendency to small families, to working mothers and to orientation of daily life on models of technology lead to a loss of instinctive childcare by mothers while doctors and nurses more often than not ignored traditional forms in caretaking. – Lets give me an example what this means for a child. It is Paula Ingall’s (1997) outstanding description out of her own analysis:

I told them everything there was to tell, but they did not listen. They just went on with their beating. The whole world was against me, It is not that they hated me, they just ignored me. I had nothing to say according to them. My cries were meaningless to them; my protests superfluous. . . . To them I did not exist. I was an object – a soulless bundle of nerves and reflexes. . . . Since, I never asked again, not anything from anybody. I either protested or stayed silent.

So in western societies two generations of children grew up in an atmosphere of not being accepted in their basic emotional needs at the beginning of their lives. As we know now children lose their sensitivity if they don’t get messages *relevant to them* in respect to their level of development. What happens can be shown by a technical picture: If you send a message, you can do it only, if carrier frequency does correspond with the receiver. This fact was not always in our minds, not even for psychotherapists, confronted with the outcome of such disturbances.

It seems to me, the endeavour of ISPP has done a lot to change this situation. and to show how this complex processes can be seen under different aspects. How this happened is a fascinating story.

In the sixties Hans Graber came into contact with a young medical doctor. He had collected a lot of his patient’s dreams, which allowed an interpretation as prenatal or reproducing birth. This contact with Friedrich Kruse has been encouraging for Hans Graber. In 1969 Kruse published his fundamental book on the beginnings of human mental life and one year later the revised 3rd edition of Graber’s ‘Die Ambivalenz des Kindes’ has been published with a new title (‘Ursprung, Einheit und Zwiespalt der Seele’) Graber 1970.

Reading this booklet Werner Kemper renewed his contact to Hans Graber and established connections with Rascowsky and Garma in Argentina. Last not least, some Austrian psychologists became interested in this themes. So in a short time some new activities took place. And in July 1971 the ISPP was founded in Vienna. Friedrich Kruse, who did a lot of preparing works became secretary and Hans Graber of course, president (Fig. 1).



**Fig. 1.** Dr. Gustav Hans Graber, Founder and first President of ISPP (Photo: F. Kruse)

From the beginning the basic concept was the continuity of human life from conception to death, not only physiological, but also in the psychic life. At the beginning of life there is an existence where needs are satisfied. The Fetus has a complex feeling, as it has been described with the word 'oceanic'. (Lietaert Peerbolte (1976): "The fetal mind is 'oceanic', or let us say in very modern words: 'high'.") This balance is disturbed by the change of the whole situation in birth. Graber's statement: Physical birth is the birth of 'ego' and not of psychic life that exists at that time.

In the discussion of the first years Graber made two important completions : stimulated by new findings, He conceded differentiations in the prenatal psychic development . And he developed his concept of a primary resistance ('Urwiderstand') in analyzing birth situation and the time before. This resistance is an important factor in analysis and needs working with the mutual transference by the analyst too.

So we can understand that even after Ferenczi's work few analysts came to this early periods. A reason for this was, that this early periods need a specific form of communication and therefore a specific work on transference: It is not helpful to give interpretations on the level of later developmental periods (Schindler 1983). This also interfere with acceptance of prenatal psychology in public opinion. To overcome this basic resistance for an acceptance of Graber's ideas some of us, especial Kruse, Hau and I myself had in mind to extend the concept and establish *first* a multidisciplinary discussion.

This had been arranged with Hans Graber. He agreed and so the concept of the first International Symposium at Freiburg i. Br. 1972, organized by Theodor



**Fig. 2.** Executive Board of ISPP. Session September 18th, 1976. Members (from left): Dr. Edith Graber, secretary, lic. theol. Stefan Blarer, treasurer, Dr. Gustav Hans Graber, honorary president, Prof. Dr. Sepp Schindler, president, Prof. Dr. Igor A. Caruso, vice president, DDr. Friedrich Kruse, vice president (Photo: F. Kruse)

F. Hau, enforced this mutual exchanges, like all the later conferences. Nevertheless emotional aspects and regarding the basic resistance remained a part of the endeavour for an information on a broader level. The following meetings at Paris (1973) and near Munich (1975) enriched the discussions. In September 1976 a congress of ISPP was organized in honor of Hans Graber in his home town Berne. The topic: “Interpretation of peri- and prenatal dreams in psychotherapy”. Hans Graber retired to presidency and was elected as honorary president (Fig. 2). He remained active until he died on April 11th 1982 at the end of his 89th year of life.

Discussions with other disciplines in psychology as well as in medicine could be established in mass media (Fig. 3). An invitation of the University of Salzburg (Fig. 4) brought the congresses and the ideas of ISPP to the universities (1978 – Salzburg, 1979 – Basel, 1983 – Düsseldorf). Students have been very interested there in the different aspects of pre- and perinatal psychology (Fig. 5).

Looking back three aspects have been central for the development and for the success of ISPPM and can lead us in future times too:

- An ecological basis of a broad multi disciplinary concept.
- Orientation on concrete facts, in research on psychosomatic development as well as in psychoanalytic, psycho therapeutic and preventive work.
- Methodological reflection on the outcome of our knowledge.

### *The Ecological Basis*

For me Graber’s concept has been basic for further considerations. But in preparing my lessons, I realized that students could not understand his language, his terms and his way of thinking. So I begun a reformulation, to see Graber as a pioneer in ecological psychology. His sight of birth as a change of total situation – in German: ‘Wechsel der Daseinsweise’ means the men in his environment.

My formulation has been “uterus is the first environment of men”. Therefore it makes sense, to speak about an ‘ecology of perinatal situation’ (Schindler 1982,



**Fig. 3.** Interdisciplinary discussion ('Salzburger Nachtstudio') – ORF (austrian broadcast) Landesstudio Salzburg, April 4th, 1978. Participants (from left): Doz. Dr. med., Dipl. Psych J.M. Wenderlein (Erlangen), Prof. Dr. Hans Adam (Salzburg), Prof. Dr. Sepp Schindler (Salzburg), Dr. med., Dr. phil. Friedrich Kruse (Wiesbaden), Prof. Dr. med., Dipl. Psych. Theodor F. Hau, (Freiburg i. Br.), Dr. med. Peter Fedor-Freybergh (Sandviken) (Photo: I. Milakovich)

1983). It is evident, that all problems we have in the world outside e.g. pollution, noise and so on, can be in the uterus too.

Hans Graber compared the analysand in his lying situation in a dark room with fetal situation. He asked: "Ist nicht die psychoanalytische Situation ein Zurückgehen ins pränatale Dasein?" (Isn't the psychoanalytic situation [the 'psychoanalytic setting', S. S.] a regression to prenatal existence?) executed both symbolically and in reality by psychoanalyst and patient together? He was referring to the closed room, the dimmed lights, the generally monotone speech and the security provided during analysis sessions.

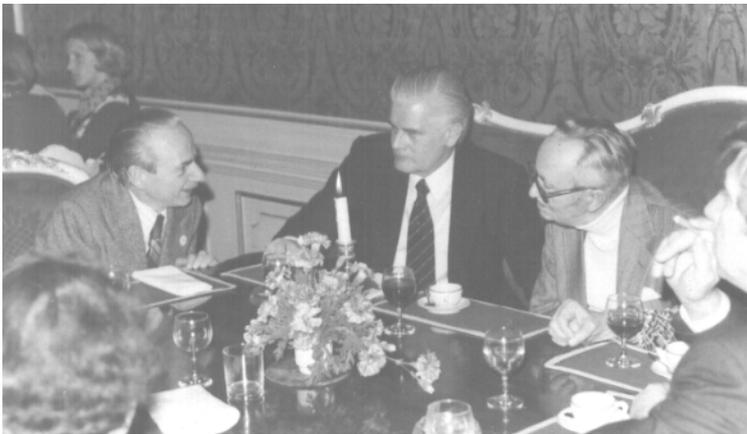
So we came to three levels :

- a) The real situation in the womb and at birth
- b) The later representation of this situation not only in the mind of the person, but also in his / her body.
- c) The reconstruction in the analytic, therapeutic situation.

And this means: psychotherapists never can treat the newborn, they never can offer a solution for the immediate causes. They have to do with juveniles or adults and therefore with a 'basic resistance', Graber's 'Urwiderstand' and with later interpretations. Furthermore the potential counter-transference inherent in this aspect of the relationship is important and often not analyzed.

#### *Orientation on Facts*

The question is, the means of the situation and the experiences for fetus and newborn? – It has further been evident: also in the womb there are different ways to

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**Fig. 4a,b.** The 5th International Congress of the ISPP. Reception by the Government of Salzburg, March 30th, 1978. **(a)** Participants (from left): Prof. Dr. med., Dipl. Psych. Theodor F. Hau, (Freiburg i. Br.), Dr. Gustav Hans Graber (Bern), Doz. Dr. med. Włodzimierz Fijałkowski (Łódź), Prof. Dr. Lotte Schenk-Danzinger (Graz/Wien), Landeshauptmann Dr. Hans Katschtaler (Photo: I. Milakovich) **(b)** Participants (from left): Doz. Dr. med. Włodzimierz Fijałkowski (Łódź), Prof. Dr. med., Dipl. Psych. Theodor F. Hau, (Freiburg i. Br.), Dr. Gustav Hans Graber (Bern), Landeshauptmann Dr. Hans Katschtaler (Photo: I. Milakovich)

influence the young human being, conscious experiences are only one part in the complex processes.

To show this on a concrete example Im considered about a central, nearly unknown fact and spoke at Berne on ‘the dreaming fetus’ (Schindler 1982) – a child influenced by a lot of information out of different channels and more and more unable to react by movements. Paradoxical sleep comes up.

Relation between mother and child constitute another field: uterus does not exist without the mother. The first environment is a very sensible organ of a concrete woman. Remember Sutherland’s (1980) statement: “A fundamental organizer has been fashioned, not from instinctual satisfactions by themselves, but



**Fig. 5.** Prof. Dr. Erich Blechschmidt shows students of the University of Salzburg (Seminar Prof. Schindler) his collection of reconstructed models of human embryos at the University of Göttingen; June 1980.

from these along with the experience of general fit between the infants overall psychological needs and the mothers spontaneous acceptance of these." Fetus and newborn stand from the very beginning in the context of personality and lifespan of his/her parents. – Some theses have been made on concrete problems in this area (Beckord 1983; Rottmann 1974; Sonnewend 1977). The role of a special language ('baby-talk' Mörtl 1983; Wegener 1996) and dialogical relationship (Papoušek 1994; Schreiner 1990) became an object of fundamental researches.

This leads to an important actual area – the preterm births. Prenatal psychology can do a lot in prevention (Janus) as well as finding the best condition to establish an emotional contact (Marcovich, Ernest Freud). Parents are encouraged to help with care as much as possible, cuddling and 'skin-to-skin' contact are seen as beneficial. But also in respect of special pedagogical treatment prenatal psychology could be helpful (Hollenweger 1989, 1995; von Lüpke 1994; Meyer 1987; Vogel 1991).

The enormous progresses made very small preterm children enable to survive and open new possibilities for empirical researches. These children live in an artificial uterus, while physical development is nearly the same as it is in the womb. What means sound, what means to be touched, what means warmth for them?

As far as we can see, it is a wide range of individual differences; but we know nearly nothing by systematical direct observations, although early-born can respond.

### *Methods*

Let me end with final remarks in regard to methodological questions. The importance to overcome the 'basic resistance' ('Urwiderstand') was discussed above. But also technical possibilities have been a great help for our endeavour, like di-

rect observations by ultrasound, measures for the arousal of the baby or better conditions in special care baby units.

No less important was another fact: some years before this took place some scientists changed their point of view. Observed babies responses to auditory stimuli (Salk 1960), to skin contact (Veldman 1991) and alternative experiences in different areas of medicine (e.g. Tomatis 1987) became essential.

Changes came not only by new observations. But also changes of paradigm in other disciplines e.g. behavioural embryology (Gottlieb 1976), neurophysiology (Milani Comparetti 1986), developmental endocrinology (Gupta 1988) or woman-health psychology (Wimmer-Puchinger 1992) has been helpful to overcome isolation of prenatal psychology in scientific discussion.

Finally David Chamberlain (1991) summarized: “The flood of new informations makes the old theories quickly obsolete. Most of what we thought we knew the fetus twenty five years ago must now be reassessed. – Generally, empirical discoveries favor the idea that the fetus is a sensitive, active being who has preferences and can learn from experiences.” (Fig. 6) and as we can say now, fetus is able to *respond* individually in *his* language. I am convinced that all this will become accepted on a broad level now, at the end of this century. So a dialogue within scientific discussion will go on.

Modern sciences have an other problem to deal with prenatal psychology: the tendency to identify scientific endeavour with a certain paradigm (T. S. Kuhn) of-



**Fig. 6.** The first scientific lecture in the new building of the faculty for science at the University of Salzburg has been held by David Chamberlain, Ph.D., San Diego, president of the Pre- and Perinatal Psychology Association of North America on the topic “The Mind of Newborn – Increasing Evidence of Competence” at October 3rd, 1986.

ten connected with overconfident of statistics. Prenatal psychology only can be successful in a multi disciplinary way, as psychology in general.

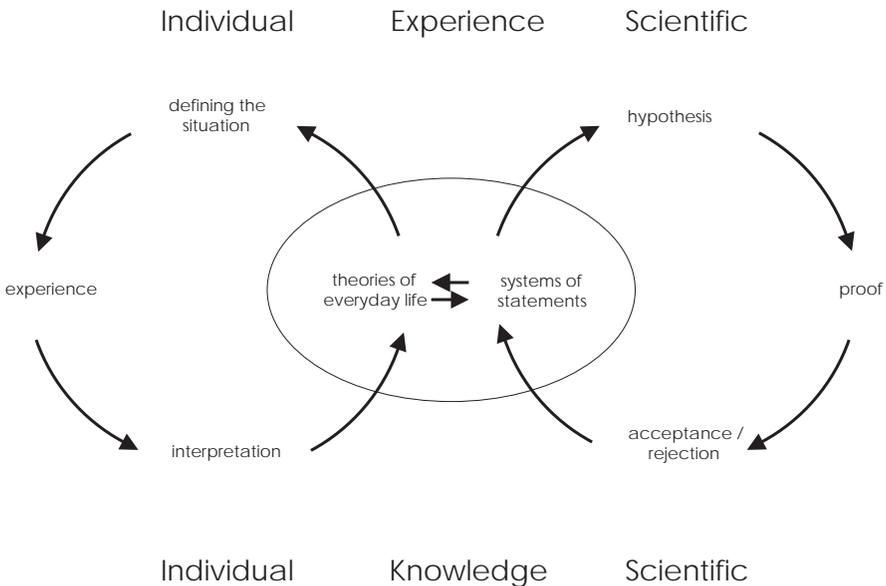
As early as 1927 Karl Bühler demanded for a closed system of scientific knowledge to coordinate the outcome of the different aspects of psychology: (1) experiences as well as (2) observations of behaviour and (3) cultural manifestations.

Finally some thoughts to the mutual influence of daily-life experience and scientific way of verification. Of course they are connected. Of course both ways are legitimate. But it is a simplification not taking in account in which way we came to an insight and in which way we came to an application. Practice is *never* in a deductive way dependent from theories, even not in such a successful science as medicine. It's a *mutual* dependency.

Experiences lead to an interpretation and/or an rehearsal, guided by consistency and repetition and later on to theories of everyday's life. Such theories can be conscious or unconscious, they help to understand what a situation 'mean'. So they form an act of defining situations and are the basis of interpretation of new experiences.

Experience → Interpretation → Theories of everyday life →  
 → Defining the situation → Experience

A similar circle take place in scientific processes to form systems of statements (theories). Statements, propositions or assumptions as tentative explanations of certain facts have to be amenable to empirical tests. Such a hypothesis became either supported or rejected by the evidence. A new finding, an other hypothesis, or simply a case not contingent with the theory leads to revisions and the circle begins again.



**Fig. 7.** The link between individual and scientific experience (Schindler 1986).

Hypothesis → Proof → Acceptance/Rejektion →  
 → System of statements → Hypothesis

A schema can be helpful for understanding, how this mutual influence works to connect both circles. This is of course a dynamic process leading to a synthesis on a higher level (Schindler 1987) (Fig. 7).

The goal for prenatal psychology can be, to come to an effective transfer from theoretical concepts to practice and to scientific reflections of the broad common knowledge, how to deal with babies.

As well as the interdisciplinary dialogue, the dialogue between practice and theory is an important task for the future; both with the goal to stimulate communication between the babies and those who take care of them to make next generation fitter for social life.

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