

## The Problem of Using Scientific Knowledge—Discussed on the Example of a Study of Female Gymnasts in Germany

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**Abstract:** The success of qualitative social research often depends on the chance to collect data as authentically as possible, e.g., in case of investigating life-world contexts that means data which are very close to the attitudes and perspectives of the protagonists acting in their respective contexts. Frankness and communication are central premises which have to be considered, especially when the field to be investigated is quite unexplored and unfamiliar. With frankness and communication the relationship between researchers and those to be researched often changes in the course of a prolonged research process in a way that the former want to increasingly formulate offers for the participants out of a previous descriptive attitude and the latter shed their scepticism towards the researchers and expect or hope for something in return (e.g., consultation services). At this point a special problem of research becomes critical: What looks like identical intentions could not be more disparate. What researchers produce is knowledge of a research field and the individuals acting in this field from which practical consequences can not be easily deduced. In the attempt of the research subjects to find such deductions nonetheless there will be almost inevitably biases in the corresponding research results. This fundamental problem of using scientific knowledge is discussed based on the example of a qualitative study of female gymnastics.

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### 1. Introductory Remark: Problem of Using Social Scientific Knowledge

The title refers to the use of social scientific knowledge which in many publications has been shown to be difficult (cf. already RYLE 1969). According to the authors, a simple linear deductive function according to which scientific knowledge—especially empiric knowledge—could be transferred to the corresponding practical context of acting is not only unlikely, but structurally not even thinkable (cf. RADTKE 1996, esp. pp.37-61). Social scientific investigations, be it of an educational, sociological, psychological or ethnologic/ethnographic nature, have lost their "magic" in this respect long ago, but have to be modest in that what they mean with consequences for practice, above all in the final chapters of the respective publications. We are faced here with a double paradox: *First*, especially the qualitative researchers know of this problem of use, as research on the use of knowledge supplies them with sobering evidence and

they have known of the different construction levels (during data collection) since SCHÜTZ at the latest.<sup>1</sup> And nevertheless it is part of their self-conception, not to be denied, and often also of the existential justification logic, to be able, or even to be forced, to phrase consequences supporting non-scientific contexts. [1]

*Secondly*, also the recipients probably have an intuition of the antinomy of scientific knowledge and practical acting knowledge but try everything to make connections by which, e.g., through selection and trivialisation of scientific knowledge, their own (ritualised) action is authorised more often than changed. Truncated in this way, scientific knowledge then vanishes in practice (cf. v. KARDORFF 2000, p.616). But despite all modesty, something very rewarding can be stated for qualitative research efforts especially according to the latter perspective when speaking about the ability to connect social scientific knowledge to "the" practice—even if one always must assume the distortions (or biases) mentioned—it implies that this is possible after all. If research is completely self-centred and if the knowledge generated is not only something other than practice, but basically was incommensurable to the demands of praxeological contexts, then there would be no issue of connection (cf. BONSS 1999, p.117). In that case one can only hope that with life-world oriented research and the way in which it is conducted in particular, knowledge will be produced that has at least a recognition value for the persons with whom one has dealt for several years (cf. v. KARDORFF 2000, p.619), if not even a reflection potential for own routines and rituals. [2]

We had this hope in our qualitative research project on competitive sports for children and adolescents in which the subjects were female gymnasts competing at the national level. The underlying interest in knowledge, related to this field allowed and allows to be characterised by the triad of describing, understanding and consulting, so that with a consultation intention at the latest—this became clear very soon—the problems of use of social scientific knowledge were to become critical. On the following pages we will report on this within selected contexts (2), before then, in the form of "transitions", the possibilities of phrasing consequences for a field of action will be explored (3). As usual, we will end with a conclusion (4). Thus our thoughts are quite close to the data and do not belong to the "pure" methodological reflections in which the interpretation of the interpretation demand more energy than the matter itself (cf. SOEFFNER 1989, p.66). [3]

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1 According to the research on the use of knowledge a clear dividing line has to be drawn between "skill" and "knowledge". One must not assume that, e.g., a university knowledge may be transferred linearly to relevant practical or professional skill (cf. BROMME 1992, RADTKE 1996, NEUWEG 1999). Now such knowledge is not completely irrelevant, but it can—if it is orientated towards cases—make practical acting reflective, through undertaking the function of substitutional interpretations. In deduction these thoughts lead to the term "case knowledge".

## 2. An Example: The World-Unto-Itself of Female Gymnastics

National female gymnastics is an action field which may be characterised as a special world, because here relatively few girls and young women take part in and demonstrate, highly complex sportive skills which are very time consuming and live in a kind of closed system together with their coaches, parents, officials and others. We were interested in the issue of psychosocial burdens and risks of German high-performance female gymnasts. The methodological basis was the insight that, although the subject acts in a predetermined life-world, he or she does not passively surrender to it but is able to actively form and shape it. SCHÜTZ sees the individual as the central point of its life-world, structured in spatial, temporal and social stratification around it (cf. SCHÜTZ & LUCKMANN 1979; 1984). Beside typification, relevance plays an essential role in SCHÜTZ' concept. According to this model, every human being develops his/her own relevance system which means that the individual's own life-world is structured in centres of different relevance depending on his/her respective interests. Most of these relevances are probably socially mediated, but nevertheless no one can conclude from his or her relevance system to that of someone else's easily. To reconstruct typification and relevance of the life-world of female gymnasts and coaches was the central focus of the study on female gymnastics, which, at the same time, had a substantial difficulty, because reconstructions of perspectives, attitudes and manners suppose qualitative strategies at the research methodology level, through which specific subjective views of the participants can deliberately be captured. These strategies are based on a meaningful premise, namely that the participants are considered experts who are able to provide competent information on important aspects of their life-world. In spite of approaching complex situations of everyday life of coaches and gymnasts, it cannot be emphasised clearly enough against this background of qualitative research that in their analyses researchers act in a certain grey area that is not to be underestimated. On the one hand they are always outside observers who have no immediate access to the special complex situation which they intent to examine, so that without any doubt certain actions will not be understood. On the other hand what we perceive as action in female gymnastics is, at best, a small segment of what such action may generally consist of, because the persons concerned make selections within their social world and thus already perform structural work (cf. SCHÜTZ 1971, p.61). [4]

Based on this background, the question which guided our project can be further extended. The issue was the perception of the subjective sense which is attributed to the actions of their specific life-world by gymnasts and coaches. Thus it was not only important to understand how this action could be described concretely, but what conclusions could be drawn for future action coordination from what the individuals reconstructed. Following this direction, we had hoped to be sensitive to the various facets of meaning from the protagonists' point of view and, if possible, to formulate consultation offers for this field. [5]

The study was designed according to the Grounded Theory. Research techniques were participant observations and guided interviews with active

gymnasts (n=23), coaches (n=18), former gymnasts (n=7) and parents (n=14) (cf. FREI, LÜSEBRINK, ROTTLÄNDER & THIELE 2000). The texts were processed according to the coding paradigm of the Grounded Theory so that in the course of the study several leading categories emerged (cf. STRAUSS & CORBIN 1996). One of them was the "*educational or teaching aspect*", about which the coaches spoke repeatedly in different nuances in the interviews. This category has to be read as an "in-vivo code" (cf. STRAUSS & CORBIN 1996, p.50) and will be described in more detail in the following. Using the statements of coaches it is shown which features and dimensions were ascribed to this category, and which specific expressions and events of "*the educational*" were reconstructed by the coaches. Within the framework of the coding paradigm the following management of data reflects the transition from open to axial coding: Phenomena are named and questions in relation to them are asked. This results in special dimensional expressions and characteristics in the further course of analysis (cf. STRAUSS & CORBIN 1996, pp.44 and 93). The quotations of coaches are made anonymous, attributions to individual names were avoided. For the problem of use of scientific knowledge it may be worthwhile to note that the project was third-party funded by the Bundesinstitut für Sportwissenschaft (Federal Sports Science Institute) and supported by the Deutsche Turner-Bund (German Gymnastics Federation). Thus additional expectations and hopes were linked to the project which, at least in the final stage of the study, had an influence on the research work. [6]

Referring to the introductory remark it should be stated that the problem of use of social scientific, here predominantly physical-education motivated, knowledge in this field assume a special acuteness, mainly for two reasons. [7]

1. Generally, female gymnastics is a highly sensitive system in which in the past and present the protagonists have almost consistently made very bad experiences with outside comments, speculations and judgements. This is true especially for journalists' reports: gymnasts feel that the journalists' approach is rather a cheek. But also physical-education perspectives have a clearly negative tinge and refer to well-known pictures, e.g. that of the "gekrümmte" ("crooked" or "twisted") children (cf. FUNKE-WIENEKE 1997), or, with reference to the female gender, the talk is of a "drama" (cf. ROSE 1991). Due to such stigmatisation, the protagonists in this field, predominantly the coaches, have developed an effective strategy of shutting others out. And thus we had to overcome some hurdles with our approach to first of all describe and understand this world of artistic gymnastics, in order to get access to gymnasts and coaches, to talk with them informally, spontaneously and finally to have interviews with them which were not—at least not exclusively—strategically oriented. Moreover, there were coaches from the former Federal Republic of Germany and the German Democratic Republic and therefore different ideas about organisation and realisation of performance sports issues leading to complex and vulnerable relationships. Against this background the initial scepticism of third parties wanting to analyse this field, was rather strong. Despite and supposedly just because of this prejudice, a specific hope and attitude of anticipation developed after the period of mutual role acceptance, which in the course of the years, with all necessary

structural distance, even became a kind of familiarity—linguistically indicated by transforming the expression "*the educators*" into "*our educators*". The hope was that we would not only do a differentiated analysis of female gymnastics, but from the scientific-educational view also provide arguments against the above-mentioned external hostility—this was above all the interest of the federation and its full-time national coaches. This very understandable wish corresponds to the everyday slogan: attack is the best means of defense. [8]

Next to this wish the coaches also wanted to be able to deduce from the study educational orientations for their daily action practice—and this as quickly as possible, even before the next Olympic cycle, so that the relevant educational and further educational measures could be transferred to the responsible committees (e.g., teaching committee). As if it was not at all a poor basis for our research efforts. As everybody agreed: Education is essential also in high-performance sports, or "*All is a matter of education in the end*" (quote of a coach, cf. FREI et al. 2000, p.214). However, in a more detailed analysis the further connotations of such attributions come to mind and the already mentioned *act of distortion* of social scientific results by the persons concerned became apparent—a circumstance that points to the problem of the use of scientific knowledge for the concrete practice of artistic gymnastics and may not only be explained by the wish for justification potential. Rather the coaches act under stressful structural basic conditions which even in other high-performance sports are rather rare in this intensity. The level of skill in female gymnastics is so high that the kinetic elements must be trained very early and, for several reasons, are seldom performed in perfection at an age beyond 20. The high-performance sports career of the gymnasts is thus finished very early and lasts one Olympic cycle of 4 years—often even fewer years of competition (participation in international competitions is allowed from the age of 16). [9]

In other words: In this field there is an extreme shortage of time and with an extremely competitive performance demand. Therefore the coaching business is to be structured in a highly targeted and economic way, time-outs are not planned and, if they occur, often mean the premature end of career. Educational ambitions of coaches that in view of the young age of female gymnasts are not to be denied and are not easy to fulfil. This alone results in an antinomic demand structure of the coaches' action (cf. SCHIERZ & THIELE 2002, p.50) with the consequence that measures and innovations—also those initiated from outside—are quickly integrated into their own systemic logic and reinterpreted correspondingly. But how is such an act taking place? [10]

2. Another problematic dimension of the use of sports educational knowledge concerns more the quality, the content of the act of distortion. The coaches subsumed not only their own educational considerations and reflections under the systemic logic of the greatest possible success of their protégés and thus inevitably also their own acting, but at the same time implemented the research results at a different level that obeyed another logic and followed other ambitions, and with this reference formulated indirect, sometimes also direct, expectations towards our research work. In order to draw this ambivalence from the

perspectives of the researchers and those to be researched more clearly and to phrase it methodologically, now the meaning of education will be documented from the coaches' point of view. This again is a result of our research. In the deductions of consequences for the field this ambivalence has become evident again and again.<sup>2</sup> [11]

That the coaches ascribe great importance to the "*educational aspect*" is not only comprehensible regarding the fact that information is given to researching sports educationists in the form of interviews and informal talks. Rather meaning is typically assigned to all activities in our society where children and adolescents are handled with a certain intention. In competitive sport it is not different, and in artistic gymnastics especially the short span of time is used with enormous intensity. A top gymnast spends 25 hours or more a week in the gymnasium, already at the age of 12 years 4 or 5 training days per week are not unusual. That in this time educational questions and processes are due to be dealt with, is hardly surprising, and the coaches consider it as part of their role and function, occasionally even feel like "*substitute parents*", even if education is going on virtually on the side. Under the focus of professional ambitions the meaning of the "*educational*" is offered centred in two facet: *Diffusivity* of what is meant by education and the multitude of action fields in which the "*educational*" seems to play a role. For the coaches "education" implies that whenever the relationship to the gymnasts becomes difficult and problematic they rely on a formula approach to solve the problem. From this perspective

"it is quite important that you can penetrate the psyche, otherwise you cannot guide them. You do not always succeed as you may imagine, this is quite natural, but, well, you also collect your experience. But it is very important that you act educationally" (quote of a coach, cf. FREI et al. 2000, p.215). [12]

Where training methodologies, biomechanics and technology are not sufficient, where the gymnast becomes the subject matter in all her complexity, the bell tolls for the "*educational*", pedagogical and psychological in some form or other. What these educational plans of emergency look like in detail is then typically described by the coaches in very unspecific terms. According to them, educational action is very situation-oriented and primarily dependent on subtle intuition, feeling and knowledge of human nature. At any rate, theoretical knowledge content is not used frequently, "*education*" is rather met with reservation:

"then I think a great gap exists between theory and practice, especially in the field of education, yes, this at least is my opinion on that, so that you really benefit from experience" (quote of a coach, cf. FREI et al. 2000, p.215). [13]

The classical reproach of distance between education and practice thus is also found with the coaches, which, however, does not lead to denying the basic importance of the "*educational*", but rather to a differentiation of education and educationally relevant phenomena. "*Education*" has little in common with the

2 The following exposition closely follows the research report (cf. FREI, LÜSEBRINK, ROTTLÄNDER & THIELE 2000, pp.213-220).

"*educational*" from the coaches' point of view. As an important legitimating empty place the "*educational*" has an important function especially for the presentation to the outside, because one signals awareness of the problem by using the term. Therefore not denying or playing down, but emphasising of the relevance with simultaneous disappointment regarding scientific support. [14]

Educational ambitions of coaches also emerge in other contexts which appear to be more concrete. They refer in such instances to the necessity of education for artistic gymnastics, getting to know the rules of the game and getting used to the "*system of working*", which mainly affects the "novices" within the system. There is a constant emphasis on the significance of "*guidance*" of the artistic gymnasts in order to not let them "stray away" or err from the straight and narrow by teaching them, e.g., clear behaviour rules with regard to their diet. The coaches have to encourage and motivate, see themselves as "development aid volunteers" and personality builders and transfer their "educational function" even onto the parents as they also must be trained for competitive sport. Also important is the educational function of the sport discipline itself regarding character traits or attitudes of the gymnasts. In this field especially there are great hopes:

"That education in sports or with sports and through sports actually always brings about positive values. You can really see it already with the little ones, when you start with the nursery school, first, second, third graders, where they first develop an approach to the sports discipline via normal children gymnastics or mother-child exercise classes, for different reasons, you will note in comparison to other kindergarten children that these children are much more independent, also a greater discipline in a way, a certain basic order, and that many parents also confirm after one, two years that their child has already learned many things through sports in contrast to others of the same age, without any pressure, without any coercion, but simply in this group" (quote of a coach, cf. FREI et al. 2000, p.216). [15]

The summit of educational measures is reached when one succeeds at last in letting the education end in self-education of the artistic gymnasts, i.e. when the external demands have been internalised so far that direct interventions are hardly necessary any more. Two guiding parameters seem to direct coaches here, first the system practicality and secondly the transferability into everyday contexts of the gymnasts. [16]

There is therefore an "education for gymnastics through gymnastics", which in a way on the side and invisibly achieves its purpose in the course of the years and sees to it that the gymnasts meet the requirements of the matter (and the system). Additionally there is also the direct educational ambition that may be rather subsumed in general terms under an overall educational responsibility. The dimension of personality building in total thus moves into the centre of awareness, the system protagonists coach and gymnast are here replaced by the adult and the adolescent human being, who have an intentional "educational connection".

"And then, of course, there is for me also always the—very, very important for me—the personality development of single girls. I do not want to see this only from the sport perspective, but what I can contribute to it, also outside the gymnasium, I try and I also want to, as I said, because this always gives something back to me personally, also as a human being, when I met them later on, when I am glad myself about the development of the girls, and as I said this really appeals to me. Actually this is what is appealing in an educational sense, let's say, to work with people ..."  
(quote of a coach, cf. FREI et al. 2000, p.217). [17]

Now it is interesting that the coaches refer to classical educational categories with their emphasis on the significance of personality development and independence of the gymnasts. But within the demands of the system of competitive sport in general and the artistic gymnastics in particular this category becomes fragile. Because independence collides with another central demand of coaches, namely the wish for control as completely as possible. Completely unclear remains thereby the exact meaning of independence. It reaches from the especially supporting function of creating independence based on many organisational coordinations which the gymnasts have to perform, via the rather forced granting of independence through the understaffing making the constant care for the gymnasts impossible, or the resignedly retreat of coaches from their controlling function because of altered social circumstances, all the way to the confession of consciously intentional education of the gymnasts for independence with the acceptance of loss of control. The individual version of this educational category of independence thus cannot be separated from the systemic, but also the individual context of the individual coach. Ambivalence is to be identified in every case as it is about balancing such heterogeneous aspects as enjoyment of artistic gymnastics versus toughness of a high-performance training, the demands of children and adolescents versus the rules of a competitive sport tailored for adults or the risks of borderline stress versus the gymnasts' right to protect their health. The integration of "*the educational*" into one's own action logic—called distortion so far—is strongly coloured by the coaches almost necessarily, you can also say: performed through the "rose-coloured glasses". This is then not only justification to the outside any more, but self-protection in the face of ambivalent demands. A circumstance easily striking as negative at a superficial glance. [18]

Thus it can be summarised that the coaches who had been examined prefer a pronounced orientation to "artistic gymnastics" under the conditions of high-performance sports, whereas the personal orientation appears rather ambivalent. They are, in principle, conscious of the importance of the "factor" human being, even emphasise its special status again and again, mainly, however, under the dictate of the matter of artistic gymnastics and not as an end in itself. In relation to the systemic logic, such an underlying trend—just hinted at here—is definitely comprehensible and stringent, perhaps even necessary, but at the same time presents a problem which emerges if perspectives are imposed that grant priority to personal orientation. Representatives of certain educational basic positions thus can castigate female gymnastics as inhuman, even cynical, while coaches at the same time place their own educational ambition into the foreground. Different rationalities, fed from different value hierarchies, collide and create mutual lack of



understanding as the reasons for each side's argumentation remain unexplained. [19]

These associations, relationships of dependence and paradoxes must be known in the attempt to offer consultation services or other kinds of use of scientific educational knowledge for such a world-onto-itself and complex system. It would be unfortunate to assume that the protagonists were lazy or even evil-willed in taking over external knowledge offers. Instead it is rather advisable to examine in detail in what form the protagonists alter such knowledge for their practice and what rationality they express in doing so (cf. v. KARDORFF 2000, p.620)—for the aspect of educational orientation of the coach's action in female gymnastics this has been shown (above) by way of example. This kind of rationality of the coaches first must be noted. Then in a communicative process, against the background of knowing and understanding such rationalities, it should be possible to develop the opportunity to explain with benefit one's own scientifically motivated arguments. Merely contrasting one's own position of educational action makes the corresponding use rather unlikely. To make transitions possible means also from the methodological angle to realise the advantage of those qualitative procedures that have dedicated themselves to this postulate of understanding and thus devotion to complex life-world contexts. [20]

Of course, despite all efforts for understanding and multitude of perspectives an *integration performance* is required to further cherish the hope to be able to formulate action-guiding consequences for the investigated field from the results. The final part has such transitions as its subject, with the presented artistic gymnastics project again providing the examples. [21]

### **3. Transitions: Possible Uses**

The understanding-describing approach to the field of female gymnastics has been chosen in order to become, from the educational view, sensitive to possible stresses and risks and to identify problematic action patterns of the protagonists. It had been indisputable from the very beginning that this is basically a problematic field which sees itself being exposed to criticism. Thus there has always been the hope and the concern and also the wish in our research, based on our analyses, to offer the protagonists, above all the coaches consultation. [22]

Not discussing different kinds of professional consultation it should only be noticed for our venture that less stringent interventional options develop in this kind, which is the case, e.g., for technologically oriented fields in competitive sports. In another study on female gymnastics which has been carried out parallel and in cooperation with us and which was of biomechanical and training-scientific nature, e.g., a consultation result was to increase the thickness of the mats in order to prevent injuries (cf. BRÜGGEMANN & KRAHL 2000). Through such a direct intervention, a system optimisation may be achieved rapidly and easily. Here the meaning and benefit of technological consultation is demonstrated. [23]

Now complex action patterns of humans are characterised (luckily) by a technological deficiency and exactly with such patterns the social and arts scientists deal with. Thus it was clear in our case that there would be no guiding or even prescribing consultation (such things are often found among the prejudices against educationists—just as with some coaches), but rather a consultation which confronts and challenges with different perspectives. "Help for Self-help" is the underlying motto. Consultation must get involved in the own logic of the fields to be considered and try to create a link between own educational demands and external demands of competitive sports with children and adolescents. However, there is an essential pre-requisite for this kind of consultation: There must be a consulting attitude which provide for an active role of the recipients. Only then consultation can lead to concrete forms, only then a project as this one can connect to practice. [24]

This investigation offers several such connections. They are at different levels and refer to

1. the system "artistic gymnastics" as a whole, together with its collective knowledge which is represented in implicit playing rules, tabooing, etc. and which possesses great relevance for climate and culture in this field. In this context also the integration of highest federation organisation is required so that they become self-reflective in their functional procedures and recognise possible paradoxes. The federation as a leading authority attributes considerably to the system's climate;
2. an intermediate level, it may be called contexts, which refers to single gymnastic centres and bases and which may comprise quite different conditions and action patterns. This means certainly financial, spatial-material conditions, but also the individuals, the gymnasts and coaches to be met "at the front", who always had nuanced opinions, motives and action patterns. As a standard is not assumed, an analysis on the spot is surely obligatory prior to profitable consultation services;
3. the level of protagonists in the narrow sense, that level, at which gymnasts, coaches, parents, etc. enter into immediate actions—virtually face-to-face—with one another. Here consultation may refer to traditional relationship between coach and athlete and in this sense accompany the individual during a process of negotiation, secondly, another type of consultation can also be considered which refers directly to the individual protagonist. Such situations develop, if an external shelter is available where just in case of explosive issues, problems may be expressed by the individual gymnasts. In our project this affected, e.g., parents of gymnasts or future gymnasts—parents, who felt excluded from the tight internal communication circles of the system. They simply lack the pre-requisite of communication and thus finally an argumentation and decision basis against daughter, coach and official. [25]

From these consultation levels different dimensions and focuses of consultation may be deduced. Here again an example of dimension is underlined which—so to speak—crosses the three consultation levels. It refers to communication

structures in this field, which were subjects during the whole project period and which will be further dealt with in targeted (further) education measures. Thus situations and actions were subject to controversial discussion, for example during squad educational courses, for which the coaches themselves gave the discussion stimulus. In these discussions differences became evident compared to the point of view of the researchers, but also differences among the coaches themselves. One central, frequently recurrent subject was the coordination processes of coaches and gymnasts subsequent to a training exercise or training element. These situations of discussing and analysing together what had happened and/or been done were considered highly significant by the coaches who indicated at the same time that their recommendations and corrections would be carried out inadequately by the gymnasts. Or in other terms: The coaches reported on the ability of the gymnasts to recognise themselves what was to be corrected, and saw the usefulness of their own remarks in relative terms without, however, refraining from these remarks. The communication pattern of giving feedback at the sport equipment, favoured by the coaches, seems to be such an integral part of the daily training routine that even observed inconsistencies could not change anything in this (putative) relevance—and it appears questionable whether anything in this respect should be changed by means of external advice. In these discussions the chance for consultation consisted rather in supporting sensitivity and problem awareness for questions which are at risk to be lost far too quickly in the daily training routine—although the coaches are actually aware of them. Coaches are at least able to speak about many problematic action situations which they predominantly experience with gymnasts. [26]

It has proven useful, e.g., by means of corresponding observation or video records, to make concrete material available. True, in such discussions on their own specific modes of action coaches often felt like being forced to provide an explanation, and they gave multiple justifications, such as general basic conditions and systemic constraints (lack of time, pressure to succeed, etc.), but these attitudes of the coaches gave also the impression of an existing but sometimes just "uncommunicated" expert knowledge—i.e., the knowledge on the different forms of problems that are part of the training routine and how diverse the coping patterns may be among coaches. No statement can be made here on whether the further individual action logic can be changed in this way. Nevertheless such discourses seem to provide a suitable and sensitive approach for routinised and often ritualised practices. Another desired effect is that a competition principle which rapidly leads to shutting oneself off is mitigated among the coaches by joint negotiations. In this sense "communicative links" aiming at the cooperation of the protagonists are likely to be more valuable for the current situation of female artistic gymnastics than the motto that competition animates business, because the competition between the few gymnastics centres is enormous and is leading to fragmentation rather than to cooperation. But this is exactly the situation that the small field of female artistic gymnastics cannot afford in view of the competition with other, often better (socially and financially) rewarded competitive sport disciplines. Thus the importance of communication for this field allows to plead for providing such knowledge of communication already

during the various stages of education of the coaches. Major questions could be which special communication structures are to be distinguished and what special role communication is to play in competitive sports—above all related to children and adolescents. One must also think of the knowledge on subjects which are often topics of communication in artistic gymnastics, i.e. specific knowledge on motivation, health, childhood and adolescence, social changes, and similar things. There is reason to believe that it would be useful to win experts for imparting such knowledge contents, e.g. educational, psychological or sociological experts, as long as the individual offers do not digress too far from the acute problem constellations of the coaches' everyday work. This does not mean that, e.g., educationists with their offers are automatically made mere accomplices of the system. They must contribute their own criteria and demands, but cannot do it if they are completely ignorant of the requirements of competitive sports. It goes without saying that such exchange processes are difficult and that there is a risk of imposition. But the consequence should not be to stop communication; the consequence may also be a reflected way of exchange which explores the opportunities of the feasible and simultaneously sets definite limits to tolerance. [27]

The basis of consultation measures for optimising communicative structures is the concept that despite asymmetry of knowledge (e.g., in the relationship of experts and laymen, here coaches and parents) a competence transfer is of course possible (cf. SUCHAROWSKI 1992, p.181). Resources are exploited which are available to the system and its protagonists. At the moment, when federation and coaches feel solely responsible for the interests of competitive sport and negate the parents' competence, or, vice versa, the parents are very confident about their expertise in education, but underestimate the functions and importance of coaches for their daughters' action, the opportunity to maximise mutual competence is omitted. Communication structures which overcome the differences in knowledge and competence require frankness. You can only appeal to this frankness. [28]

*Reflexivity*, however, is located in the process of communication in such a way that a communication course based on understanding the others makes the shared practice reflective and opens innovation options for this practice (cf. EHLICH 1992, pp.47f.). To take this chance is the purpose of professionalisation of communication structures at all levels of female gymnastics or between these levels. The subject is a kind of *culture of discourse* which has to be established and into which quite different amounts of knowledge are integrated, that of laymen (parents) as well as of experts (coaches, gymnasts, officials) and that of external scientific experts (e.g. educationists, psychologists, training scientists). It is necessary not to appeal such a professionalisation only, but also to let it be coordinated by external consultation experts (unclear ,two parts do not support each other; again grammatically it is ok but the two parts do not support each other). This summation must not be understood as delegating problems, following the pattern that unsolvable issues are transferred to others for a solution. To recall own competence means, e.g., in regard of coaches to do reports based on daily observations of actions in the gymnasium and to explicate when and in

which situations communicative dissonance occur. Indicating the supposedly very tight and brief time budget, a willingly made counter-argument, lacks argumentative power if one analyses the daily coordination of action in the gymnasium more exactly—which the coaches are also aware of. If one does not work on the disturbances of the training routine in a communicative way, one will end up with bigger problems and in the long term the solution of which would require considerably more time. [29]

Every serious interaction process "demands from the interactant an active management of his own life-world and just through this offers the opportunity, to experience this life-world as a component of his own practice and to perform an intervention in order to change it" (EHLICH 1992, p.47). The task is to accurately analyse the communicative structures and processes in order to first of all detect any negative fixations, ritualisations; thus already a change would be initiated. Through internal educational programs multiple situations could then be compiled and a kind of collegial consultation started which is also practical-case oriented. [30]

#### 4. Conclusions

After these insights into the field of female gymnastics through which the problem of using social scientific knowledge should be more objective and vivid, the "relationship between research results and practical consequences" can be focused on more precisely. Of course, the facts of different types of knowledge from science and practice endures, and also the basic problem of translation. In this sense—this was not mentioned—the scientific knowledge is always already implicit: Here also rules, presumptions and myths are in force which are turned pragmatically, but hardly emerge or stand out in the explicated argumentative mode. [31]

Nevertheless connections, action-guiding consequences for practice out of scientific knowledge are possible. However, such connections are not made as to the transfer of one (scientific) inventory to another (practical) one (cf. RADTKE 1996), but rather according to the shared context for different knowledge and action patterns. "In transitional zones of shared practice, science and non-scientific practice, this may be concluded, must acquire an implicit access to every other implicit routine or pragmatic rule" (RENN 1999, p.142). Such an understanding has as prerequisite that each position and thus, e.g., existing interests, objectives and expectations should be communicated and understood by the other side. Hence the necessity emerges for social scientists "[to make] themselves able to be connected to practice" with their own intentions for change and consultation (v. KARDORFF 2000, p.622). This would mean for our issue not to convert to educationally justifiable action with one's own, well-founded ideas, but rather to understand the interpretational logic of the acting protagonists in this very peculiar field, i.e. the perspective of "*educational*" practice. Otherwise the very research would not have been possible here. [32]

It is no challenge for this attitude that translation difficulties probably do not only occur, but will be experienced more frequently than an easily achieved consent.

To modify WITTGENSTEIN's phrase: "Whereof one cannot speak, one can but work on it" (RENN 1999, p.143). [33]

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