

Quality enhancement and assurance in research work via scientific coaching: a theoretical basis for inter-institutional and cross-regional research activities in East and Southeast Asia

Abstract

The Regional Cooperation Platform for Vocational Teacher Education in Asia (RCP) was set up in 2009 with funds provided by the Federal Ministry of Economic Cooperation and Development (BMZ) under the aegis of the German Agency for International Cooperation (GIZ). In June 2011 the Secretariat of the RCP was established at the Tongji University Institute for Vocational Education in Shanghai, China. Among the Secretariat's main tasks was to support cross-regional reform-oriented research projects to fulfil international scientific quality standards, carrying out capacity building measures and supporting research-based reforms. The main questions that arose were how to support and facilitate research projects with the participating universities of an entire region and how to combine this research with competence development. The concept "Lernen im Prozess der Arbeit (LiPA)", which can be translated as "Learning within the actual work process" has been developed in Germany in continuous vocational education and training. The concept deploys a variety of methods for work process integrated competence development in an environment of experienced-based informal learning. This publication discusses the theoretical basis of the concept of "Scientific Coaching", that was successfully implemented and tested in common and joint research work carried out by universities in East and Southeast Asia from 2012 to 2014 (Schröder 2014).

1 The relevance of scientific coaching for inter-institutional regional research activities

The Regional Cooperation Platform offers a forum for specialised and professional exchange and scientific cooperation to universities and institutes responsible for the education and training of vocational teachers and vocational colleges. At the present, seven universities from China, Vietnam, Indonesia, Thailand and Laos are members of RCP. Other universities have applied for membership. English is the lingua franca for the basis of academic communication.

Through membership and active collaboration in RCP, it is expected these should improve the institutional capacities of member universities in terms of vocational educational research and competency for regional cooperation. The integration of the partner countries at a political level is to support the introduction of necessary reforms. These goals are to be attained individually through:

- The development of a need-oriented and future-secure training and further education offers to vocational college teachers and management staff in the cultural- and market-relevant background specific to the Asian countries participating.
- The improvement of research quality in vocational training and in so doing create a sustainable improvement of the universities offering vocational teacher education and training and awareness of reform-oriented educational policy.
- Specialised and scientific cooperation regarding the integration of the ASEAN region, also targeting coordination between vocational college and the mutual recognition of qualifications and levels of study.

The actual implementation of an operations plan founded on the basis of the binding Memorandum of Understanding, signed by the member universities and GIZ in August 2011 detailing the activities scheduled for 2012 and 2013. The central activities of the operation plan were divided into two groups. One was to pursue joint and international research activities which aroused from the suggestions for reform. The other was to concentrate on actual knowledge-transfer obtained from the training methods, conferences and capacity building methods undertaken. In order to attain self-sufficient and sustainable knowledge generation via unassisted research within the RCP, several conditions that affect successful implementation were rectified and reflected in the new agreement.

These improvements can only be attained by the RCP members. The research works shown in the operations plan proofed that the members gained knowledge and participated in capacity building programmes. Alongside the current forms of knowledge enhancement and knowledge transfer a conceptually new development of scientific coaching is to be implemented which takes into account scientific accompaniment and consulting within the RCP and between the RCP and German universities.

The theoretical and conceptual framework for such a concept of scientific coaching was structured in the concept of “Learning in the Work Process” (LiPA) and coaching. This involved two innovative research and development fields in which (via the connection between knowledge and work organisation by an appropriate teaching and consultancy organisation) the targeted development of research competence of the RCP can be achieved. The conception of scientific coaching within a regional network featuring national work-relatedness is unprecedented and presents a fully-fledged new conception in international vocational education cooperation conceived within the framework of the RCP and tested and evaluated by it.

The concept of scientific coaching is based on work process-integrated forms of competence development. The theoretical foundation and its practical implications are being described in the following section.

2 Learning and competence development in the work process

Due to the change in the work and organisation concept that has taken place in the transition from industrial society to the knowledge and service society of today, we talk of the renaissance of learning at work (cf. Dehnbostel 2007). This represents a return to a way of learning as an integral element of work life that lost its significance in the advent of high-industrial and Taylorism work structures. The notion nowadays is of work as an holistic and process-related process, which makes new qualifications, competences and work-related learning necessary and possible in a way previously unknown. All of these aspects have significant effects on the qualification and further training and its specialisation and how it interweaves with vocational teaching institutions.

2.1 Conceptual clarification and classification

Learning in the workplace is the oldest and most widespread form of professional qualification. It is a way of learning that refers to each object of work and what takes place at and about work. Learning in the work place is entwined with a diversity of insights, which can be expressed in terms of work process-related learning, work-integrated learning, workplace-tailored further training and learning in the work process and so on. Learning in the workplace is workplace integrated learning in which the teaching site and work place are identical. It describes the established location and task-specific area of learning; a didactic method that stands for the connection between learning and work.

Learning in the workplace is historically embodied in the imitation principle or mimetic principle, which came into its own in the age of the guild (cf. Blankertz 1982; Gonon 2002). Learning was attained by watching, copying, taking part, helping, trying and simulating. Learning in the workplace, in terms of adult learning, was first considered in the 18th century with the development of the educational system and then, systematically, in the course of industrialisation. Since the development of new work and organisational concepts in the 1980s, learning in the workplace has undergone fundamental change and the goals, content, forms and methods have acquired equal significance. Learning in the workplace is understood as a self-directed, process-oriented and life-long study, which essentially contributes and leads to the development of the personality, professionalism, employability and innovations (Streumer 2001; Fischer, Boreham & Nyhan 2004). It is bound to a new evaluation of experience-learning and aims increasingly toward a synthesis of formal and informal learning.

The blurring of boundaries and pluralism of study content and the forms of organisation in operational and institutional work environments have made the significance of learning in the workplace grow. But the concern is not only with the preservation or furthering of skills, knowledge and qualifications but far more the acquisition of comprehensive, professional competency. Methodologically and conceptually, learning in the workplace is increasingly proving to be a part of the development of competency that strengthens professional, social and personal competency and offers new possibilities for work-related further training and learning concepts including teacher training.

Therefore learning in the workplace is fundamentally connected to the concept of competence development which is internationally disseminated. But this is understood differently in terms of content and conception – above all, concerning the fundamental term of competence. Thus competence is defined in accordance with the development of the European Qualifications Framework (EQF) established by the European Commission (2005, 1313). Competence is defined through testing the ability to concentrate and apply established abilities, particular knowledge, skills and personal-professional conduct in the real context of a self-determined work or learning situation. In other discourses and definitions the development of qualifications and final qualifications on competence is to be reviewed (see. Arnold/Steinbach 1998; Streumer 2001, 293ff.; 76ff.; Nyhan 2002). The universalising of various regulations, under the general concept of competence are to be understood as skills, methods, knowledge, attitudes and values which draw on the whole life of a person (cf. Dehnbostel 2007, 24ff.) The development of competence is seen from the perspective of the subject, his abilities and interests and their integration into subject-orientation in the educational dimension. The development of competency as a life-monitoring process takes place in the work and life world through individual learning and development processes in various ways and forms of studying and learning. The more narrow term of professional competency refers in particular to skills, methods, knowledge acquisition, qualifications and attitudes which form the basis of the professional, social and humane work activity of the individual (cf. Dehnbostel 2008; Schröder 2009, 37ff.).

The development of competency is to evolve the professional competency and, moreover, to establish a capacity to act, which enables the implementation of work activities in terms of performance in the real work process. For a greater understanding it concerns a professional competency emerging from a “reflective” capacity to act which enables the individual a self-managed application of acquired competency to reflectively engage in activities and ways of behaving and draw on the work and social structures linked to them. In the “reflective” capacity to act, quality and sovereignty of real capabilities are addressed.

Reflectivity means the conscious, critical and responsible estimation and evaluation of activities based on experience and knowledge. At work this means the initial distancing from immediate occurrences at work in order to question the organisation process, the activity procedures and alternative action with reference to one’s own experiences and to apply one’s own knowledge of such activity. Lash (1996, 203f.) explains the orientation of reflectivity from two sides: “firstly there exists a structural reflectivity: the free actor reflects on the dictates of the social structure, the “rules” and “resources” of this very structure, thus on the social conditions of existence of activity. Secondly self-reflectivity consists of the means for the actor to be self-reflective of himself. With self-reflectivity, his own determination takes the place of the former heteronomous determination of the actor.” Self-determination and personal development are thus inextricably linked with the recognition of social processes bound to their own judgement.

2.2 Research methods for learning at work

Even though learning at work has a central dimension both historically and in the present, there is, nonetheless, no explicit historical research on this subject. Learning in the traditional craft apprenticeship and in guild's vocational training is incorporated in research as learning in communities of practice. The "communities of practice concept" which has its origins in ethnographic oriented studies (Lave & Wenger 1991; Lave 1993; Wenger & Snyder 2000), describes situated learning through activities and everyday actions in a community of people occupied in practice. Not only knowledge and abilities are passed on through this form of learning but also customs, attitudes and values. In contradistinction to the respective school study and teaching theories it is assumed that the knowledge learnt and acquired cannot be abstracted from its genesis and environmental situations and consequently the 'situatedness' of the learning is fundamental. Situated learning stands in stark contrast to instructed study for it is thoroughly concerned with learning and participation at work, but not associated with instruction (cf. Lave & Wenger 1991; Stein 2001).

The current research method which deals with reflectivity in learning at work connects to historical concepts and accounts. For Dewey, reflectivity was a central category: "reflective thinking consists of a lively, constant, careful testing of something that is maintained as true, namely in the light of reasons which support the view and pursue its further conclusions" (1910/1951, 6). In his fundamental formulation on the connection between "experience and education", reflectivity is developed alongside learning by experience, theoretically and in practice. Hereby the term "experience" refers to immediate experience that always emerges from an activity. This experience is to be integrated into reflections and then leads to knowledge, if activities do not take place repetitively, otherwise problems and uncertainty arise. This is the rule in the changing work processes and environment. The sequence of activity – experience – reflection and its continual resumption taking into consideration previous experiences and knowledge processes is dubbed by Dewey in learning theory terms with the idea that the learner is independent and if possible can learn in a self-determined manner. The reality of the learning and experience process is based on independence and self-determination.

Dewey's idea of learning and reflectivity was deepened by Schön in his "The reflective practitioner" (1983). According to Schön reflectivity enables the practitioner to overcome the complex problems of his task through a dialogue between thinking and activity. He arrives at problem solutions via a professional negotiation between two kinds of reflection: reflection which takes place during the activity and reflection that takes place about the activity. The reflection during the activity enables the practitioner, in the situation where his tacit knowledge no longer helps him, to obtain a solution via reflection as the activity is carried out. Reflection of this kind requires a consciousness of one's own knowledge but does not necessarily have to be articulated in a verbalised form by the practitioner. The result is a situative coordinated activity (see above, 9). The second kind of reflection, the reflection about the activity is a stepping back or getting out of the flow of the activity for the purpose of a reflection on an activity already carried out or activities yet to be carried out. The reflective contemplation takes place by the activity being grasped cognitively conceptually or

pictorially, stored and analysed. In addition, the knowledge of the activity is explicitly formulated for it to be analysable and re-organisable. Serious activity problems caused by shortcomings or mistakes in activity knowledge can be remedied by an alteration of knowledge. Furthermore the knowledge will be made communicable and open to discussion and criticism. As will be demonstrated in the next section, this research and development approach on reflective learning at work is to be taken up in the concept of reflective activity ability and developed further.

Research on learning in the process of work is primarily dedicated to object and development fields which place learning theory, competence theory and the learning-organisational dimension at the centre of interest. In so doing, coaching and development potential attains a special significance, as this newly emergent form of learning is possible to be developed and deployable in various areas of work and education.

3 Classification and foundation of the concept of scientific coaching

Coaching has been increasingly introduced into companies and public institutions as an accompaniment and personnel development instrument since the 1970s. Initially it took place at the executive management level, then at middle management level and in recent years at the level of skilled workers. A broad spectrum of concepts have been developed which can be categorised between the poles of consultancy and accompaniment and has been carried out in many differing organisations by very differently qualified people. Along with the practical conceptual development a certain vocational coaching has evolved even in the absence, up to now, of generally recognised standards and quality criteria, not to mention at a recognised training and further education level.

In colleges, up to now, coaching has only been applied as the exception. However, parallel to company consultants and organisational developers systematic consultancy and accompaniment functions in the areas of qualifications and competence development have been perceived in an increasing amount regarding college institutes and scientists. In Germany, since the 1960s, scientific accompaniment of pilot projects have been carried out by universities in all educational fields marking a pronounced tradition of university accompaniment and consultancy (cf. Dehnbostel 2009). This scientific accompaniment extends over a broad spectrum, ranging from priority evaluation tasks via activity-oriented accompaniment research to the tasks of coaching, mentoring and recently, learning process accompaniment and learning process facilitation in pilot experiments (cf. Kräenbring 2013).

Scientific coaching is understood here as a term for professional consultancy accompaniment and support of persons and groups with scientific expertise and also frequently used for management functions at companies and organisations including public institutions. The goal is the development of the relevant expertise on the individual and group-related learning and activity abilities of the scientific experts in the professional context. The adaptation and implementation of the concept of scientific coaching takes place in the RCP programme

“Regional Cooperation Platform for Vocational Teacher Education in Asia”. As intended by this paper it concerns the concept and foundation document, which has to be transcribed in the context of the Actions Research based activity-oriented approach of the individual national project groups of the RCP programme. As a preliminary note, concerning the methodological and scientific-methodological, one must ultimately say that the subject does not count as a special scientific area or individual discipline. The main features of the concept of scientific coaching lie more at the intersection of several scientific areas and can therefore be termed interdisciplinary. The subject is better classified as scientific in the context of business administration, organisation theory, personnel and organisational development, educational management and education management and vocational education. The special focus of the RCP programme emphasises additionally the relation to international and comparative vocational education research and to vocational educational pedagogy and competence theory.

3.1 Definitions of accompaniment and consultancy

The concept of scientific coaching surfaces occasionally in the specialist literature but is rarely understood as the professional accompaniment, consultancy and support by experts in the context of their scientific work in various institutions and fields of activity. It usually refers to the support of scientific college studies, above all BA and MA studies and dissertations. The “scientific ghostwriting” has long been known in this regard and with it the problem of plagiarism. This has nothing in common with scientific coaching the major characteristic of which can be compared with the widely disseminated concept of “business coaching” (cf. Böning 2008). However, there are similarities to the context of the Bologna-process in the allocation of professors and lecturers in occasional coaching processes which are, for the most part, obligatory in the scientific institutions. There is much to be said for broadening this approach, pushing it through at a practical conceptional level and applying it to the further training of scientific personnel.

As far as coaching takes place up to now in the scientific field, the successful implementation of coaching in companies is seen, in the main, as guarantor of a successful applicability in the context of scientific work. It is, however, to be assumed, that the context of scientific coached management and management roles in the private economic sphere and the context of professional accompaniment and support in the scientific, more usually, public field cannot be compared. How does coaching have to be designed conceptually and organisationally, for it to be implementable for economic consulting in the field of competence development and development of curricula? What are the differences and similarities in “business coaching”? Where do we see the differences between accompaniment consultancy? What forms and concepts of coaching exist up to now? These and other questions are to be answered in order to lay the initial founding conceptions of scientific coaching.

The terms accompaniment and consultancy are at the base of every coaching concept. Alongside the widespread use of the terms there is also a variety of differing definitions of the terms. This variety is necessary. On the one hand, because differing applications and

implementations and differing disciplines involve differentiated definitions of terms, on the other, because there is a frequent lack of sufficient conceptual precision. Both terms are bound to a spectrum of possible meanings and are currently far from any lack of ambiguity. Consultancy is the more complex term which leads to many differentiations and variations which often subsumes accompaniment.

In the comprehensive, general handbook published by Nestmann et al., the term consultancy is bound to 12 consultancy disciplines (2004, 45ff.), which also subdivide into single disciplines. While accompaniment as a conceptually proven term in the field of vocational training and further training has only established itself recently, the term consultancy was already introduced and anchored in the 1970s as a learning consultation process for learning problems or support for the learning of target groups, unfamiliar with learning, and those of little qualification. Learning consultancy targets the recognition of learning problems from the beginning and to eradicate them. They had a great deficit orientation which is still associated with them to this day. The term accompaniment can be found, above all, in charitable and social fields for the most part as supervision and guidance. From the outset, it targets “helping others to help themselves”, so that those affected are brought to reflection and self-sufficiency.

In the understanding represented here, the terms consultation and accompaniment in the work-world, refer to scientific and vocational education. They are clearly distinct as the development of the history of the term in the vocational and work-world suggest and arise as meaningful and necessary for the current concept. This does not contradict the fact that is a series of coaching concepts; consultancy and accompaniment are in conceptual and practical terms bound together. Roughly speaking, accompaniment indicates a long-term, continual process while consultancy is more sporadic and limited in its running time.

Consultancy in vocational training and further training is more a time-limited process of information and intelligence. In general, they encompass a reflection and feedback process with the consultant and are not standardised. In vocational training and further training person-related consultancy is central, which sets it apart from organisation-related consultancy of companies and further training facilities. The person-related consultation can be confined to a learning consultation or extend to competence development consultation. The consultation can take place in the run up to a qualification situation or be subsequent to it. They can equally be directed at an individual person or at a group.

Consultation has increased considerably in the last few years in further training (cf. Bretschneider 2005, 11), linked to a higher differentiation of forms of consultation and occasions. This variety is indicated by the following illustration, whereby both at the first differentiation level – through consideration of group-related consultation – and at the second level further specifications are possible (cf. Schiersmann & Remmele 2004, 9f.).

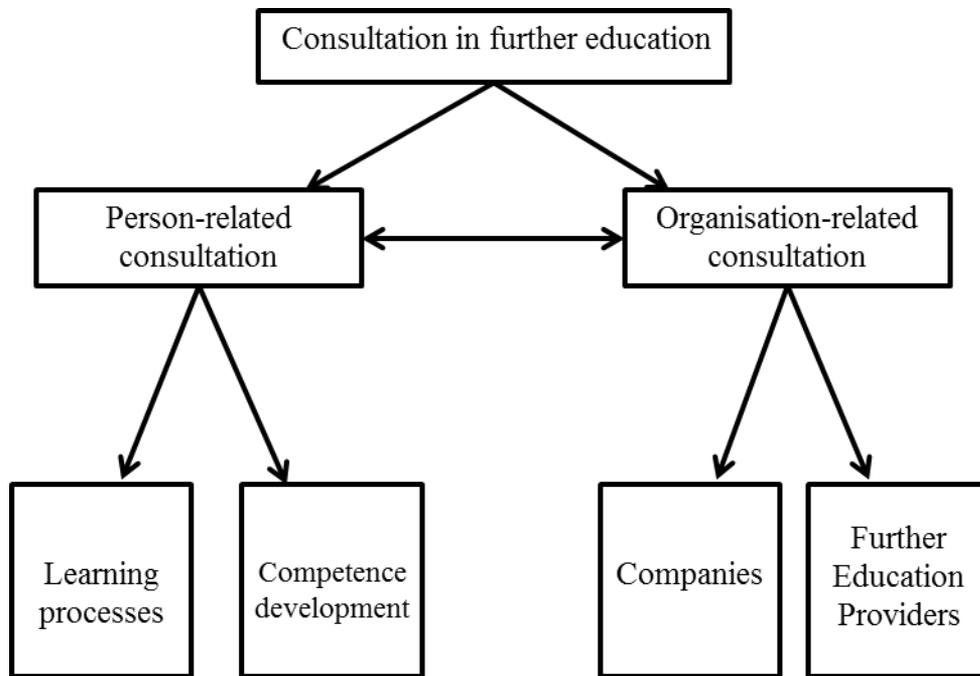


Figure 1: Further Education Consultation

In conventional use, consultation is to a large degree centred on therapy and client-centred approaches and oriented to system theory. In organisation and company consultation system theory orientation is to some degree divided in matters related to differing concepts of organisation theory comprising, however, from the outset of other related and reference contexts that intensify the integration of activity-theoretical and structuration-theoretical approaches. Also in person-related consultation clinical-psychological oriented consultation will be extended or substituted by constructivistic, activity theoretical, competence theoretical and other approaches especially in the field of vocational training and further training.

In contrast to the decades-long existing and differentiated consultation concepts monitor concepts have increased in significance only in recent times. In vocational training and further training, three types of accompaniment, above all, have evolved:

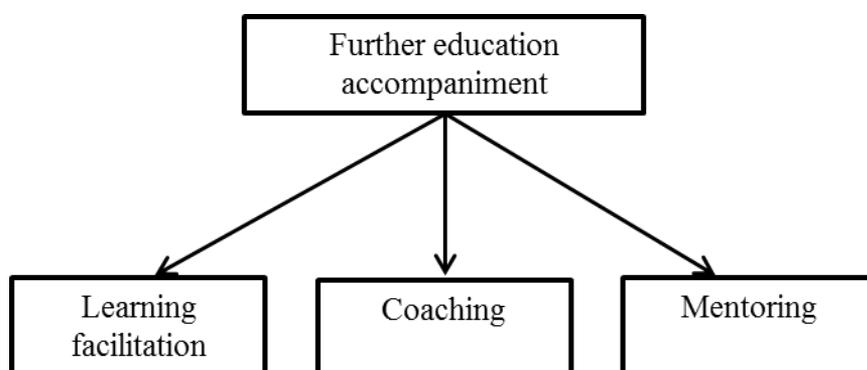


Figure 2: Further Education Accompaniment

The learning process accompaniment takes place in new operational vocational training and further training concepts mainly in the workplace, and is supplemented by learning forms and competence seminars outside the work-place. They are carried out by accompanying, accomplished learning process supervisors, superiors, colleagues or operational experts.

The mentoring is a type of accompaniment which essentially concerns the “accompaniment and support of the vocational path of youth potential” (Peters 2004, 7). Therefore it is a long-term instruction and learning relationship dedicated to the integration of the young or career planning. Mentors function more as senior management that are not immediate superiors and must not necessarily come from the same company. Experienced consultants and experts are also worth considering as mentors. The goal is the development of personality and the capabilities of the tutored as the advancement of his career, whereby the accompaniment and promotion of the vocational development is of central focus. In the operational educational work and personnel development support and accompaniment, additional forms are found, such as the use of learning partnerships and learning in tandem. The latter also belong to discourse of mentoring. Coaching is the most widespread training accompaniment.

3.2 Fundamentals and goals of coaching

The term coaching originally used in social fields, psychotherapy and in top class sport has, in the course of time, developed into an umbrella term for various accompaniment methods, nonetheless it is unmistakable. Coaching enables people or groups, professional reflection and development of their learning and competence development processes to heighten their independence, self-organisation and broaden their horizons. Since the 1970s, coaching has entered companies and qualification fields, initially in USA companies where it was understood as personnel and development-oriented leadership-training. Through coaching the employee was to be animated, their performance improved, and personal development brought to the fore. Böning outlined six development phases of coaching, from “development oriented management through to the superiors” to its understanding in the 1990s where “almost any desired activity [...] could be coached, when it encompassed a challenging form of dialogue or consultation” (2000, 21).

In Germany, the following coaching definition of the “Deutscher Bundesverband Coaching e.V.” has attracted great attention: “Coaching is the professional consultation, accompaniment and support of people who have leading roles in companies and organisations. The goal is the development of individual and collective learning and performance capabilities of leading personnel in a professional context. Coaching is one of the individual requirements of custom-made consultancy and accompaniment processes with the goal of promoting the self-reflection, self-perception and the improvement of perception and behavioural potentials” (Deutscher Bundesverband Coaching e.V.). Here it is not about public sanctioning of determination but about an interested community. The term distinguishes itself in praxis by a complexity and, to some extent, as indicated in the pejorative use of the term fitness coach. The individually related one-on-one consultancy is persistently placed at the centre conceptually to present a commonality of the various definitions. (cf. Fischer-Epe 2008, 19f.). Also

coaching, as Schreyögg terms it, is a tightly bound goal of the promotion of self-management emphasised by the individual development of conventional coaching (cf. Schreyögg 2003, 21f.)

Over recent years the various “settings” of the coaching concept such as group coaching, team coaching, project coaching, online coaching and individual coaching has been practiced and discussed. In companies most recently, individual coaching and, with regard to external coaching, group coaching has become a form of further training accompaniment. Both forms can be carried out by an external coach, an internal coach or a senior member of staff or a line coach (cf. Rauen 2000, 45). Instead of personal concerns in the client relationship, which prevail in external coaching, the coaching process concentrates on mid and lower hierarchy levels, on the accompaniment of qualificatory, competence-bound and vocational developments in the context of measures and concepts of operative innovations, educational work and further training.

Table 1: **Coaching as accompaniment of competence development in the workplace**

Coaching Form	Object
Individual	Systematic accompaniment of an employee for competence improvement by a professional coach
Group	Systematic accompaniment of a group for the improvement of the group’s competence and individual members by a professional coach

Only very recently has group coaching as an extension and additional supervision of group work become widespread. Since the emergence of coaching in the 1960s, various causes stand in the foreground for its steady increase. Important reasons for the implementation of coaching at companies have been executive and communications problems with management and employees, colleagues and superiors. Here questions regarding individual communication, i.e. behaviour during employee dialogues, in conflicts or team talks are reflected upon. Coaching, however, can also be used when structural changes and altered tasks have to be reflected upon. Concrete subjects such as the taking on of a new project by the management, or changes and restructuring processes in personnel and organisation development. Furthermore individual-centred reasons have placed the need for coaching. Subjects range from, for instance, excessive demands, too few demands, the lack of self-management, inner conflict and unclear perspectives. Individual-centred questions occupy a central role here. Another reason for coaching by management is also indicated by feedback. These can be e.g. results from 360 degree feedbacks assessment centres, observations by superiors or employee talks (cf. Schreyögg 2003, 345 ff.; Rauen 2005, 39 ff.).

The coach works methodically as a competence and process accompanier. His tasks are to give clear feedback and to carry out a basic diagnosis and work on personal dispositions and competency deficits. Rückle sums the field of the coach’s tasks as follows: “with individual coaching, both partners work together in a relationship based on trust both in the methodical

competence with management tasks or specialised tasks and with the individual development of competence in dealings with themselves. Both together put the individual in the position to be able to take on increasingly more complex tasks for which they take responsibility and work and solve them in a system-oriented manner.” (Rückle 2000, 143). The coach as process accompanier of individual specialists or groups at the mid and lower operating hierarchy levels does not follow a therapy or client-centred method but far rather, an activity or competence-theoretical approach in accordance with the goals of the operative educational work.

In addition to the actual causes, the role of the coach, his qualifications and position is another fundamental question. There is a distinction between the external and the internal coach whereby the external coach complies with the original understanding of coaching. In this instance the coach has a high level of independency and great neutrality. It is not usual that an internal employee, e.g. from the personnel department takes on the role of coach. Factors of independence and neutrality, for the most part, do not exist here (cf. Backhausen 2004, 291 ff.). The management as coach presents an internal coaching role which is often bound up in role conflicts between management and supervisory roles. (cf. Rauen 2005, 120 f.).

3.3 Benchmarks of scientific coaching

The successful implementation of coaching at companies is in the main regarded as a guarantee of successful application in the higher education area and in scientific fields of activity. Coaching at private companies is, however, not to be compared with scientific organisations, even if in regard to the basic, essential features of coaching there are many intersections.

There are three determining factors that make it possible to call scientific coaching successful, which correspond to the demands of an external scientific coach:

- **Structural determining conditions**

In the organisation or the scientific field of activity there should be a willingness and consensus about the implementation of coaching. There should also be a confidentiality built up or developed. This comprises e.g. no passing on of information to other organisations or management. A culture of trust has to be built up in which scientific coaching is seen to be profitable and from which clear advantages can be observed. There should also be an appropriate budget.

- **Individual or group-related determining conditions**

The coaching of individuals and groups in scientific expertise and leadership functions requires the individual or group to be open and prepared to take on board new and further knowledge and learning in the context of their scientific work. Furthermore they should be able to accept feedback from the coach and reflect upon it. There should also be a fundamental readiness for individual professional development and group development.

In organisations or group projects this is to be embedded in the respective organisational learning. A relationship of trust between the individual coached or the group and the coach is extremely important.

- Determining conditions regarding the coach

The external coach should be possessed of a high level of independence, which is also financially founded. He or she should have research and development experience in each scientific area, clearly beyond that of the individuals and groups to be coached. A coach should have “field competence and field experience” as well as “personal competence and individual experience him or herself” (Fischer-Epe 2008, 230ff.) The coaching competence of the accompaniment and support should be sufficiently available and appropriate to the consultancy method and experience in play.

To clarify the last points the demands on the coach are in fundamental accord with (2005, p. 473 f.) as sketched out in the following keywords:

- Broad range competence

A coach should have well-founded background knowledge in the subject areas of organisational development and corporate strategy.

- Leadership experience

A coach should have his/her own leadership experience, a mental affinity to entrepreneurship or experience as an employer.

- Empathy

A coach should be able to put him or herself in the shoes of management. This comprises the personal and structural situation.

- Feedback capability

A coach should be able to give feedback clearly and openly on the basis of equality and partnership. He or she should also be able to recognise his or her own limits.

- Handling extreme situations

A coach should be able to take into account that he or she will encounter people in extreme situations (burn out, depression etc.).

- Supervision and independency

The coach should periodically avail him or herself of supervision for his or her own case-related work.

Distinct from conventional scientific consultation and appraisal the context of the activity has a decisive significance. It is also to be understood that it concerns the scientific fields of activity of displayed practice and fields of application such as the development of curricula

and teacher-training that have taken place in the context of action research; that is to say activity and application research (Dehnbostel 2009).

4 Recommendations for conceptual cornerstones of a cross-regional and inter-institutional scientific coaching and conclusion

In the given project, the Regional Cooperation Platform has encountered challenges derived from its special characteristics and regional nature. The capacity to conduct research on vocational education is a precondition for self-reliant and sustainable development of TVET systems. Scientists from the region, who mostly have an engineering background and who are in charge for vocational teacher education at technical universities, are confronted with research projects that

- focus on the field of vocational education,
- contain comparative elements and qualitative social research,
- are embedded in an action-research design,
- demand close cooperation with scientists from various cultural backgrounds.

The research projects resulted in a series of studies (see TVET@Asia 2015), which in some cases formed the basis for policy reform.

The concept of scientific coaching aimed at employing studies and research processes for competence development of the scientists involved. In order to achieve a research process that integrates competence development, the following conceptual cornerstones were incorporated.

Participation: The chosen research topics and the development of the entire research design are based on actual problems in one of the partner countries or in the entire region. Naturally, the scientists themselves determine the research topics and processes. The coach acts as a consultant and recommends research related subjects aiming at transfer of knowledge and employment of international know-how.

Work and learning object: The work and learning objects are the actual research projects or development fields that are carried out transnationally. The research projects are to meet international quality standards.

Organisation: The building up of a work and learning organisation ran along the lines of the process of the research. The major distinguishing feature of a tested system of learning in the process of work lies in the spatial distance between the coach and the individual or group being coached.

Blended-learning: Another feature of the conceived system is that there is a considerable distance between the participants from different universities in the region. In analogy to the approaches of blended-learning it consists of working together over distances, alternated with brief presence phases as well as long internet-supported work phases.

Reflection: The concept of learning here is always to be understood as that of informal and experience-related learning, which is set up according to the process by the coach and is made conscious via reflection. Sporadic input phases have a supplementary character, in which the content of the process is to be determined by needs-based orientation.

The work and learning organisation is formed through the course of presence phases and distance phases.

Presence phases

In an *initial presence phase* the research design is to be developed based on a research strategy. One university member is placed as the lead and the other universities take part in the research plans. The scientific coach links the properties of a coach with research competencies which relate to the scientific discipline. It is vital to note that the scientific coach is in possession of the scientific discipline-related competencies.

In the *initial presence phase* the goals of the research plans are to be differentiated and sharpened, the classification and build up of the work made specific, the work package defined and the measures and temporal sequence linked to the corresponding milestones. It is to be jointly agreed on how the cooperation is to function. The responsibilities and forms of the cooperation and communication structures have to be agreed, established and documented.

The validation and triangulation of the results of the serving and empirical chapters can make a *second presence phase* necessary. It has to be tested whether this work phase in the research process can be managed with the online support in conference mode. A concluding presence phase increases the learning aspect further. The research team concludes the joint research work, reflects and evaluates on their own research process and formulates a concluding reflection report.

Distance phases

The major part of the joint activity is to be carried out at a distance. Additionally on the consultancy and observing role of a coach, the role of the scientific coach in the framework of a regional research project also encompasses a proactive element in the sense of a career. The coach has the joint planning in his/her sights and sends reminders to the participating scientists regarding the completion of their work package, when the agreed time limits are not met. The central contact partner is the respective coordinator who is in the research project of the university in charge.

In this phase the scientific coach gives advice on quality improvement on the work sections carried out and leads a reflection process. The coach can also take on a small part of the research work. This part should, however, be limited in scope and to the legwork of theoretical parts or international best-practice examples and only carried out when such a part is thematically required.

5 Conclusion

Even under the condition of intercultural and language differences, the common research work and research processes proved to be a suitable basis for enhanced and targeted competence development in an experienced based manner.

The role and the attitude of the coach are crucial for the success of competence development. Experience showed that a well-balanced mixture of stringent goal-orientation, empathy and subject-related expertise is a key to gaining acceptance, which is, in turn, a vital precondition for mutual trustworthiness. This is the basis for productive cooperation within the interface between language barriers, cultural differences and distance.

It is probably worth thinking about a global scientific community that forms a common base through exchange, cooperation and mutual support.

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