Measuring the Impact of Vocational Training Projects – An Evaluation Method and its Theoretical Foundations

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INHALT

1 INTRODUCTION[1]

Improving the quality of vocational training is an important but sometimes very difficult task. The diverging interests of at least five different social groups – employers, students, state, sponsors, and teachers – have to be taken into account. While employers demand labour force which is perfectly skilled for their own efforts, students try to optimise their future bargaining position on labour market for reaching high income or other benefits. The nation state and its policies in economy, education, and labour market influences not only the conditions for utilization of trained experiences and knowledge attained in vocational training, but also sometimes involves the help of external sponsors for improving the performance of vocational training (especially in development aid programmes). Schools and their staff, particular teachers and trainers, have to recognize these different demands and need to legitimate the resources used for training. In most cases data requested for this task is not available because of missing monitoring and evaluation systems.

In Germany, the leading organizations of development cooperation implemented standardized evaluation tools for observing the impacts achieved during their work on vocational training projects and programs in various countries. The 'lessons learned' have been (and still will be) used to improve planning and steering instruments and procedures. This should help to increase efficiency and efficacy of development cooperation not only but also in vocational training programs.
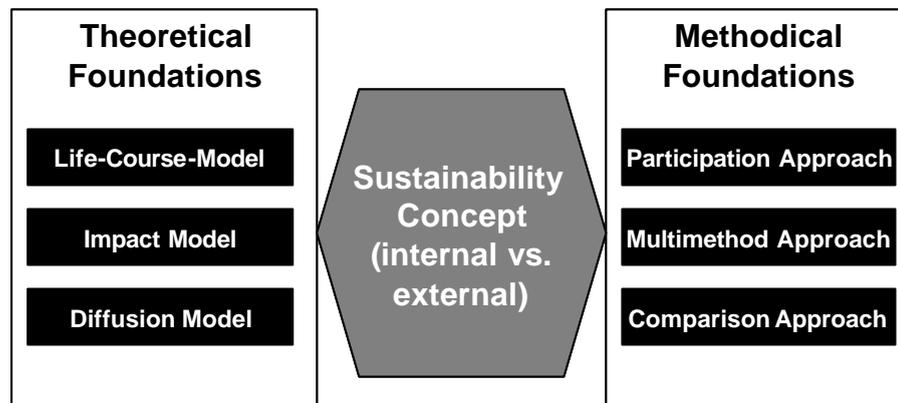
This paper will present one concept for ex-post evaluations which had been successfully used in such different countries like Mexico, Uganda, Egypt, China, and the Philippines – just to mention actual projects of the Centre for Evaluation Research (CEval) at Saarland University. Moreover, other institutions like for instance the German Federal Institute for Vocational Training (BIBB), in cooperation with the Russian Vocational Education Development Institute (IRPO), decided to use this method for ex-post evaluation of the TRANSFORM-program in Russia.

The evaluation concept is composed of three main elements (figure 1):

- *theoretical foundations* consisting of three different scientific models which complement each other;

- *methodical foundations* bringing together three more or less different methodological approaches; and

- *sustainability concept* with the central differentiation between internal and external sustainability.

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[1] Main parts of this paper are short-cut and updated versions of passages from Stockmann (1997), which is recommended for further information.

Figure 1: Evaluation Concept

Theoretical Foundations	Sustainability Concept (internal vs. external)	Methodical Foundations
Life-Course-Model		Participation Approach
Impact Model		Multimethod Approach
Diffusion Model		Comparison Approach

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In chapter 2 the theoretical considerations and the three concepts (life-course-, impact-, and diffusion-model) will be presented. Additionally, the three methodological approaches (participation, multimethod, and comparison) and their consequences for the conduction of evaluation research will be outlined in chapter 3. Finally, the implications for evaluating sustainable effects of vocational training projects will be discussed.

2 THEORETICAL FOUNDATIONS

The theoretical model, as mentioned before, consists of three interrelated concepts which are linked here for the use of evaluation research. These basic concepts are widely recognised and acknowledged models in various disciplines of social sciences and its theoretical assumption are proved by an impressive amount of empirical research. Nevertheless, in all these research fields (life-course, organizational, and diffusion research) new findings will always lead to slightly modifications for clarifying specific issues. It is one important general target of evaluation research to use their insights in practical project work for contributing to these ongoing improvement processes of social theories.

Theory-driven evaluations (e.g. Chen 1990; Chen & Rossi 1980) have therefore two main advantages: on one hand, theories guide the evaluation process by telling evaluators which questions should be asked, which causal linkages should be identified, and how the findings can be ordered and classified. On the other hand, evaluation results help social scientists to clear-cut common research questions, to test thesis logically derived from basic theories, and to verify general formulated classification systems for its usability. Accordingly, the evaluation framework presented here is steady in its basic elements, but always changing in its specific details not only because of the need for adaptation to a broad range of evaluation topics. However, to understand the ideas behind the evaluation concept, a brief introduction to its three basic theoretical elements is necessary.

The concept of *life-course research* designates an interdisciplinary program of research that has emerged in the last twenty years and whose goal is "the reproduction and explanation of the living situations and events within the lives of individuals as well as of overall societal processes within a standardized, formal, categorical, and empirical frame of reference" (Mayer 1990: 9). Life-course research refers to the study of social processes during the whole course of life of individuals (or at least major parts of it), which are considered within the context of institutional change and specific historical conditions. Life-courses are the result of a large number of factors. Following Mayer (1990), causal factors are for example specific economic and political opportunity structures, culturally based conceptions, age-based legal norms, institutionalised sequences of positions and transitions, individual decisions, socialization processes, and selection mechanisms. From this perspective, the individual life-course "as a sequence of activities and events in various areas of life and various fields of institutionalised action" is made into the object of analysis.

Aside from the investigation of the life-courses of individuals, this model has also been usefully employed as a heuristic, explanatory framework in psychology, business administration, and organization theory. In economics, for example, the sequence of product cycles is studied in order to be able to evaluate and compare the life-long effects of different product variations (cf. Schmidheiny 1992: 27). In organizational research, the life-course model is made use of in the context of approaches in evolutionary and population ecology (cf. Hannan & Freeman 19988, 1989; Carroll 1988; Kieser 1988, 1989, 1992, 1993). All these different approaches share a common definition of life-course as a "continuous succession of event-defined phases" (Friedrichs & Kamp 1978: 16), which are linked by an endogenous causal relationship on the temporal axis. In each phase, the practical realization of specific steps of planning and action provide for the successive accumulation of resources.
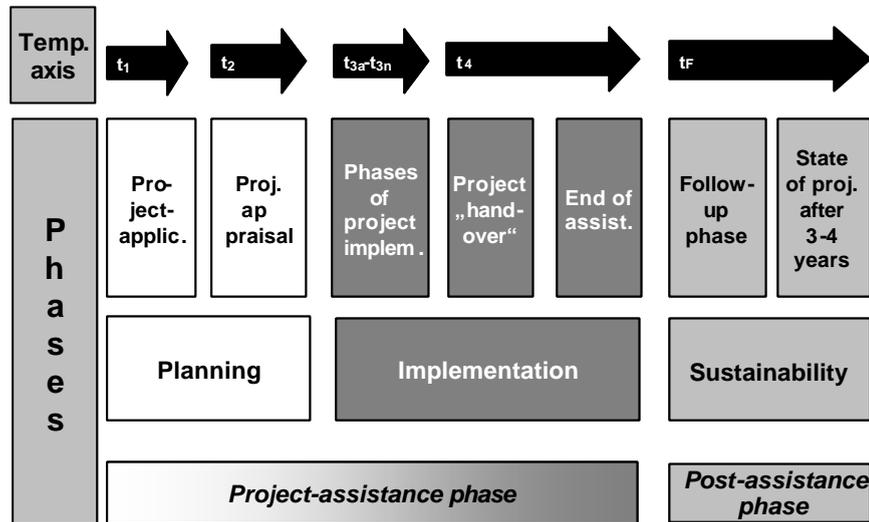
The same type of interrelationship holds for the ongoing history of projects. In its particulars, this process can be characterized in the following way:

The beginning of an undertaking is marked by "ideas" developed by various actors with the most diverse of interests. This project ideas range from well-developed proposals with precise goal descriptions, detailed implementation plans, and statements of costs all the way to voiced suggestions. Before a project is official started, there is normally a more or less formal application procedure. For example, within international cooperation projects agreements between the contributing nation states, state agencies and/or private enterprises have to be signed, which sometimes deserves long-standing negotiations. Commonly, the project itself is carried out by the executing agency under its own authority. During the implementation process, state authorities or other sponsoring organizations have to be informed about the projects progress by regular reports. Either at the planned project end or if project goals appear to have been reached, the process of ending project assistance will be initiated. Project assistance definitively ends with the submission of a final report which should provide information about objective achievement, project impacts, and experiences gained. In most projects and programs, the following period seldom gain the needed attention. This results from the fact that the life of the project is equated with its implementation phase by most sponsors and stakeholders.

In summary, the life-course of a project can be roughly divided into three primary phases: in donor-supported (a) planning and (b) implementation phases during the period of assistance, and (c) in the period following completion of donor assistance (the sustainability phase),

when the project is continued under the exclusive direction of the implementation agency (cf. Fig. 2).

Figure 2: Life-Course Model

Temp. axis	t_1	t_2	t_{3a}-t_{3n}	t_4		t_F	
P h a s e s	Pro-ject-applic.	Proj. ap praisal	Phases of project implem.	Project „hand-over"	End of assist.	Follow-up phase	State of proj. after 3-4 years
	Planning		Implementation			Sustainability	
	Project-assistance phase					*Post-assistance phase*	

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The formulation of a project idea (in most cases to be found in aid applications) can be taken to mark the beginning of the life-course of a project (t_1). The different phases of a project (t_2-t_4) are each characterized by typical problems. They can be distinguished from one another and can be analysed mainly on the basis of data produced by the process itself (e.g. project progress reports).

It is more difficult to define the end of the project, for even if the donor organisation has terminated all direct assistance and the project organization has been dissolved, the established structures can (and in most cases should) continue to produce their effects. The only thing that is incontestable is that the end of a project is not identical with the removal of external experts and the discontinuation of donor aid (t_F). Instead, this point of time actually marks the entrance of the project into an especially critical phase of its "life". Without the donor's assistance, in material and personnel, and without the special status guaranteed by the project agreement, it now has to been seen whether – on the basis of the measures – it has been possible to implement and secure a feasible, problem-solving model in terms of both personnel and organization. It is only in this "proving" phase (t_{NF}) showing whether a project has achieved sustainability or not.

Anyway, the "real" end of a project is the slowly transfer of innovations implemented by the project to some kind of durable "routine of action". Even if the original innovation has been completely overcome, there might be important sustainable impacts of them by some kind of influence on the new solutions (e.g. learning from faults during the project "life-time" or from the measured impact and its causes). On one hand, projects live forever in the "mind" of future project generations but on the other hand, by trying to improve actual practices it is always a common goal to replace former project results. Sustainability does not mean conser-

vation of "old" solutions; it stands for continually improvement and adoption to an ever changing social environment.

How different elements of social environment effects the performances of one social actor and, vice versa, how the behaviour of a single actor is contributing to social change on macro levels of society, are leading questions for social research since its beginning. Generalized, social sciences are trying to detect causal linkages between different levels of social aggregation and, moreover, want to develop useable *impact models* which are able to include as many as possible of these linkages. For evaluation research, three different aggregate levels of social systems could roughly be distinguished: projects, organizations, and the social environment (which of course could be differentiated in several elements by a great amount of criteria varying with research questions or the peculiarities of an individual case study).

Projects can be conceived of as organizational entities with specific objectives, aimed at triggering innovations. As a rule, projects are embedded within the organizational structures of an implementing agency. Examples of such *implementing organizations* are governmental institutions, associations, foundations, enterprises, or other nongovernmental organizations. In principle, the interventions of a project can be oriented toward the creation of (internal) changes in the implementing organization itself as well as in other (external) social systems. Accordingly, the implementing organizations can be objects that are transformed, but they can also serve as transmitters for the diffusion of innovatory processes.

According to this view, projects produce effects within and by means of organizations and are, conversely, through their implementing organizations, subject to the influences of *surrounding social systems*. The latter can be political, financial, economic, social, cultural, ecological, regional, international, or other kinds of reference systems. Project inputs and outside causal factors represent the independent variables and general contextual conditions for the achieved results, both intended and unintended. This is the constellation of forces within which project success and, in the long term, sustainability, is determined. To detect these causal relationships (which had been the causes of which effects at which time) by using appropriate theories, suitable measurement designs and optimised data collection methods is one of the most important targets of evaluation research.

The interdependence of various factors on different aggregation levels can be schematically represented in figure 3. The project stands at the centre of this "model". As an organizational subunit, the project is embedded in an implementing organization (e.g. a technical secondary school). Within the context of project objectives, a set of coordinated measures is aimed at helping to introduce innovations both within and outside of the implementing organization. The impact potential of the project is influenced, on the other hand, by the implementing organization (internal environment) and, on the other hand, by the systems that make up the environment of this organization and thus of the project (the external environment). The figure shows some of the possible actors in vocational training projects. Accordingly, donor assistance is but one of many environmental systems that exert influence on the project and its implementing organization. The external environmental fields can have the effect of promoting objectives or can act as "counterforce", impeding or preventing goal achievement.

Figure 3: Impact Model
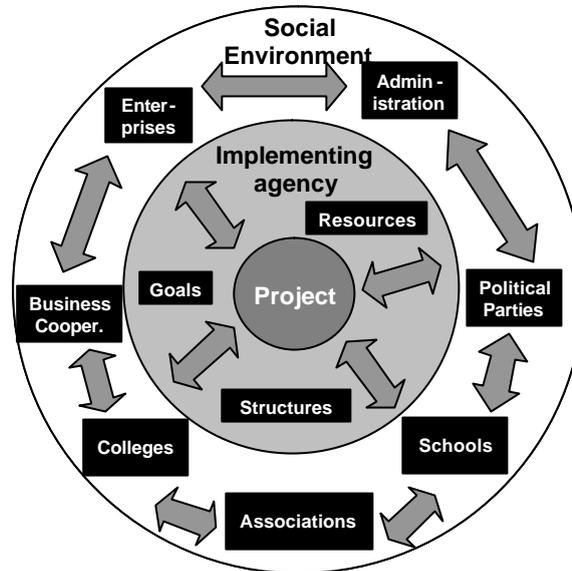
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One paradigm of organization theory conceives organizations as open social systems that are – according to intention – rationally organized in order to achieve specific goals (cf. Kieser 1993: 161ff., Thompson 1967: 66ff.). Organizations possess a (more or less) functional structure to bring the activities of their members and the needed investment of their financial and technical resources into a common line. According to this theoretical paradigm, three main elements of organizations can be distinguished: goals, structures, and resources.

- *Goals*: In almost every definition of organization, their goal-directed character is presented as a defining feature. The pursuit of goals is seen as the main reason for the formation of organizations (cf. Barnard 1938: 37). Goals produce common points of reference among participants (cf. Blau & Scott 1963: 2f.; Mayntz 1977: 58ff.) and provide the most general principle guiding construct. Therefore, within organizations goals fulfil numerous functions by (a) providing criteria for the choice between alternative strategies of action, (b) motivating participants and building a source of identification, (c) offering present justifications for past actions, (d) providing criteria for evaluating work performance, and (e) representing ideological guidelines according to which participants can orient their collaborative efforts. In general, organizations develop interrelated *target systems* by building a hierarchical and horizontal order of their set of goals. Especially in huge organizations, the formulation of goals is sometimes more a political act than a rational basic for goal-directed collective action. Therefore, the embeddedness of project goals within organizational goal systems and existing goal conflicts has to cause our attention during an evaluation process.

- *Structures*: The *formal structure* of an organization refers, on the one hand, to the relatively stable network of social relationships that assigns individual members a definite position and definite status. On the other hand, it refers to the system of shared values and orientations that serves as the standard for the conduct of organizational

members (cf. Blau & Scott 1963: 5). Formal structures consist of relatively constant patterns, which are constituted out of set regulations, in order to produce specific modes of behavior. Over time, this patterns lead to *routine processes* which guide action as well as the transmission of information. In addition, there is also a structural pattern of *informal relations and informal communication processes* within an organization. Such "weak ties" within and between organizations in *network structures* are one of the most important actual research fields (cf. Brunsson 1985; Chisholm 1989; Kersten 1998; Lane & Bachmann 1998; Marin & Mayntz 1991; Weyer 2000). Characteristic for these networks are the leading forces of "trust" (because the cooperation is voluntary), stabilized by informal rules and the implementation of collective sanctions. To distinguish are *cooperation and information networks* which sometimes include different groups and persons. Additionally, *punctual cooperation* with a contractual fixed division of tasks for a set of defined common goals have to be separated from more continuously but less committing network structures. Main elements to classify organizational structures are (a) formalization, (b) division of labor (specialization, internal differentiation), (c) coordination, (d) configuration (management system), and (e) allocation of authority. For projects the durable integration in existing formal and informal structures is of great importance.

- *Resources*: *Members of organizations* share the fact that organizational structure serves to combine and focus their activities toward the achievement of specific goals. Therefore, individuals are the main "tools" of an organization. The formal design of social integration in an organization is based on contractual relations and membership does only refer to specified actions and performances of defined "positions". The capacity of individuals to fulfil the demands of their position within the organization is the most important organizational resource. It depends on several factors e.g. formal education, task specific training, appropriate job experiences, motivation etc. However, members are not the one and only resource of an organization. The importance of *financial resources* is similar obvious: without funding or self-financing, no organization can secure its long-term existence. Whereas business enterprises produce the means required to cover their running expenses for personnel and materials and to make new investments by selling their products, most schools are dependent upon government funding or upon tuition and other means of creating independent revenue (such as through the sale of products or services). Finally, another very important resource of organizations is the *technology* used "for transforming inputs into outputs" (Scott 1081: 17). The technology of vocational-training institutions and technical schools encompasses both the knowledge about procedures for imparting information and skills (such as that contained, for instance, in curricula, training programs, and so on) as well as the technical equipment needed to do so (such as machines, tools, instruments, and so on).

For sustainability of vocational training projects, the decisive question with regard to the implementing organization is: how effective is it after the end of assistance in continuing project's tasks? In order to answer this question, individual organizational elements are analysed (goal-systems and conflicts, formal and informal structures, personal, financial and technological resources) at different points in time for measuring the extent to which project interventions have helped increase effectiveness. Therefore, the evaluation concept will draw

upon features defined here as the constitutive elements of an organization. Organizational effectiveness is estimated to be all the higher,

- The greater the success in establishing a system of goals that is accepted and supported by the members of the organization

- The greater the extent to which the structure and functioning of the organization allows the effective tranformation of resources into outputs

- The greater the qualifications and motivation of the organization's members and the greater the success in recruiting and keeping such members

- The more the costs of the organization can be covered and the more the technical facilities are in keeping with local production demands

- The more the adaptability and flexibility of all organizational elements permit the innovations made necessary by changed environmental conditions to be assimilated without losses in productivity.

The question of the effectiveness of an organization is linked to the life-course approach, since effectiveness can change considerably over the course of time (cf. Mayntz 1977: 137). In order to be able to evaluate the effects of corresponding interventions, effectiveness at the outset of assistance (baseline) should be compared to estimations made during the course of assistance and at the end of assistance as well as with the evaluative findings after assistance ends. If the organizations in question remain effective years after the end of assistance, then it is legitimate to speak of *internal sustainability*.

Furthermore, the internal project outputs (the organizational dimensions changed by project outputs) become the independent variables with which changes in sectors outside of the implementing organization are to be produced. These external sectors (such as the labor market or the vocational-training system) now take on the role of dependent variables. Since vocational training projects always wants to achieve certain impacts outside the school or training centre (e.g. improving the quality of human capital for enterprises), the diffusion of project output is one important criteria for evaluating the effectiveness of the implementing agency. If capacities developed and implemented during the implementation phase of project are durable able to produce significant diffusion effects, one can speak of *external sustainability*.

Diffusion studies (c.f. Rogers 1995: 38ff.) take up the question as to the conditions under which diffusion takes place. In this context, diffusion is generally defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers 1995: 5). According to Mohr (1977: 19ff.), three groups of variables that have found entry into diffusion studies could be distinguished (figure 4):

- The first group of variables refers to the *specific qualities of the given innovation* itself as they have been observed and judged by those people who might be concerned by implementation processes. Numerous studies show that the chances of adapting an innovation will be greater "the more advantageous, the more compatible with existing production conditions, the less complex, the more testable and observable the innovation appears to the user" (Mohr 1977: 60). These specific qualities are merely not "naturally" inherent but ascribed characteristics which are sometimes mainly a result of prejudice against the new techniques or measures within the group of potential users.

- The second complex consists of *environmental variables*. In case of vocational training, chiefly political and economic institutions (e.g. educational laws, labor market) and actors (e.g. political parties, firms, unions) are important for project success. Within our research in various countries and regions, socio-cultural factors (e.g. working attitudes and tradition) proved to have serious effects as well (cf. Stockmann et al. 2000: 258ff.; Stockmann 1997: 172ff.; Stockmann & Leicht 1997: 104ff.). This result is also verified by trans-national diffusion processes in various policy fields (cf. Becker et al. 2001: 331ff.)

- The third set of variables treats the elements of the formal and informal *structure of organizations* that introduce innovations: Are those innovations compatible to adapters goal system, do they have enough personal, financial and technical capacities for implementation, are their organizational structures suitable for an adequate implementation and finally, are they involved in communication networks which are appropriate for spreading the knowledge about innovations?

Figure 4: Diffusion Model
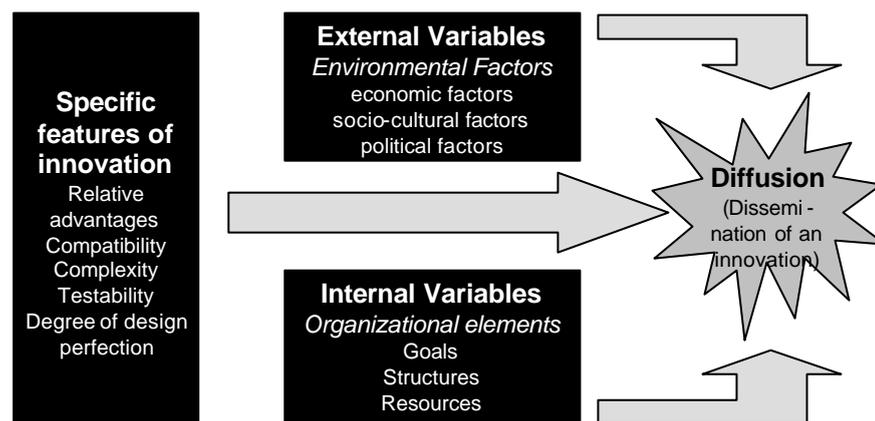
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The evaluation concept presented here is based on an integration of various theoretical approaches, each of which takes up a different aspect of a project. The *life-course model* represents the point of departure; it emphasizes a temporal perspective and the processual character of projects. According to this model, projects constitute themselves out of a series of sequential and distinguishable phases. In each of these phases specific steps of planning and implementation are to be practically realized in order to strengthen the problem-solving capacities of the project-implementing organization. The individual phases are interconnected and causally linked along the temporal axis.

An *impact model* derived from organization theory is used to analyse the implementing agency. According to this model, organizations are open social systems that aim to create rational structures for the achievement of specific goals. The constitutive features of an organization are: its goal-system, formal and informal structures and networks, and their technological, financial and personal resources. On the basis of these elements, the effective-

ness of an organization solving the project tasks especially beyond the end of assistance is to be determined.

The concept draws upon *diffusion studies* in order to answer the question of the extent of the external diffusion of project and implementing-organization innovations in these two sectors. It also draws upon this area of research to analyze the factors that influence their diffusion. To accomplish these two tasks, the three above mentioned sets of variables are distinguished. Since the aim of a project is to produce impacts that go beyond the confines of the implementing organization itself, the diffusion effects achieved represent a further important criterion for assessing the sustainability of a project. The diffusion of implemented innovations is termed *external sustainability*, while the durable implementation of problem solving capacities within an organisation will be assigned as *internal sustainability*.

3   METHODOLOGICAL FOUNDATIONS

The best guarantee of an assessment of project effects that is valid in terms of causal analysis would be provided by an experimental design with randomised sampling procedures (cf. de Vaus 1991; Krauth 2000). However, as far as evaluation research is always some kind of field study, experimental designs are hardly to use. Therefore, a quasi-experimental design with usually a lower degree of internal validity has to be used (cf. Heinsman & Shadish 1996). But even if one tries to optimise research design by trying to come as near as possible to the ideals of experimental methods, some problems will occur. For instant, the planned use of control groups – necessary for any experimental design – can lead to some problems: It is difficult to explain to members of the control group why they should spend time to be the subject of questioning or observation. This leads to high nonresponse rates. Furthermore, surveys among control groups automatically arouse aid expectations that are subsequently left unsatisfied. This leads to disappointment within members of control group.

From the point of methodological demand, managing evaluation research is a very difficult affair and specialists in social science methods with a high amount of experience are needed to reach proper results. Moreover, special experience in conducting studies is necessary to manage the special tasks which cover, for example, the mediation of various diverging interests in evaluation process or to produce applicable suggestions within research reports. Therefore, in most cases external specialists must be engaged for running an evaluation study.

However, even the best educated external evaluation experts do not know very much about the project in focus. Hence, they have to learn as much as possible about the details of the case during evaluation process. This is by no means possible without the contribution of those people having involved in the project during its particular phases. Therefore, a *participatory approach* is needed (figure 5). While evaluators have to bring in their special knowledge on methods of empirical social research and their experiences in evaluation studies, project staff and members of stakeholders must be willing to share their insider know-how about the project performance. The quality of results to be produced during evaluation process always depends on the readiness of both sides to co-operate.

As a third party, the sponsors of evaluation studies have to be considered. Without any doubt, the interests of those who ordered the evaluation study and, in most cases, financed the projects must be taken into account. Sometimes the interests of these different groups involved differ and it might be very difficult to reach an acceptable compromise for a successful cooperation. However, everybody has to acknowledge that only concerted action will lead to useful evaluation results which could improve further project work. As an ideal, the goals of evaluation should be negotiated at the beginning of the process. Therefore, a common *initial workshop* presenting the planed evaluation procedure and offering the opportunity to discuss this procedure as well as the goals of evaluation ought to be carried out as early as possible. In supplement, at the end of evaluation process another *final workshop* with representatives from all three groups should be organized as well to discuss the evaluation results and the potential to realize the suggestions of evaluation team. Eventually additional measures to ensure the co-operation during the evaluation process have to be implemented. Each evaluation must be recognized by all participants as a difficult social process with the need to respect the position of all groups involved. By ignoring this fact, evaluations will surely miss its target to improve further performances.

Figure 5: Participation Approach
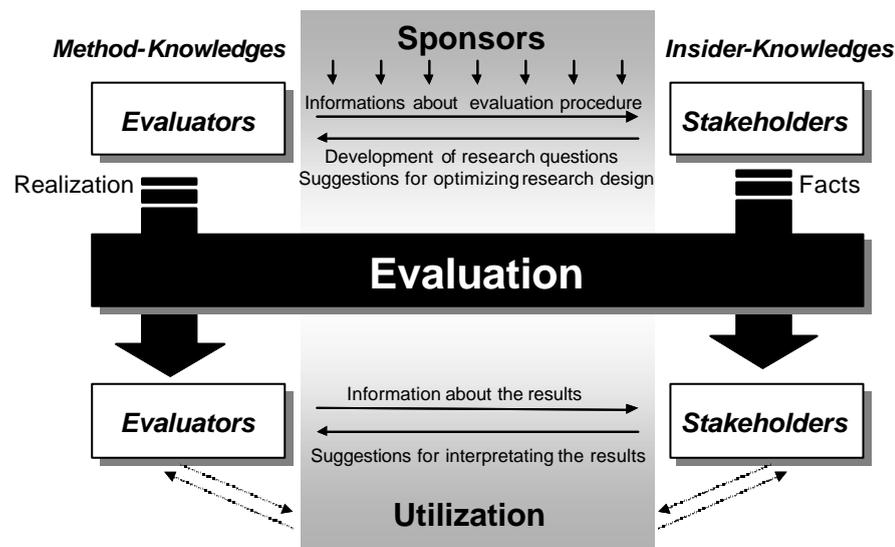
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The main task of the external evaluation experts is to maximize the methodological quality of the study and by that the validity of evaluation results. As mentioned above this is sometimes a very tricky job because of the limited possibilities to control impacts on the variables under investigation. For example, without an appropriate control group one can hardly decide whether an observed causal effect (e.g. the increase of labour income of graduates) is the result of project intervention or not. If it had been the goal to change the training program completely for all students, it might be very difficult to define a comparable control group.

While these problems are related with the chosen research design, other problems are directly linked with the methods used for data collection. Even the best study can not avoid the

problem of confounding factors which are sometimes compulsorily produced by the used way to assemble the needed information. For example, one might decide to use representative surveys with standardized questionnaires. Herewith, limits of analysis will be already set by formulating the questions: if important subjects, questions, or single categories are missing this information will be not collected and therefore could not be included in analysis. Especially in evaluation studies, sometimes new topics will be detected during the evaluation process which should be considered or at least controlled in causal analysis. Standardized surveys limit the possibilities to take this into account.

Therefore, in-depth-interviews which offer the chance to detect new and yet not sufficiently measured aspects have some advantages. However, such kind of interviews need a lot of time for data collection and produce a huge amount of information which have to be ordered and classified by the evaluation researchers. According to this, they are also quite expensive. Hence, in almost any case it will be impossible to realize in-depth-interviews with all students and graduates. Herewith, standardized surveys have rewards and are the proper method-in-use. One can imagine that such a way of balancing the pros and cons of different research approaches and data collecting methods can improve the potential to get valid information for an evaluation.

As a result, one recommended approach for systematically ruling out alternative explanations is to link several "weak" study designs into one "patchwork design" (Brandstädter 1990: 218; Weiss 1974: 10). Accordingly, in order to encompass the greatest number of relevant impacts and ascribe causes to them, a multimethod approach with several different elements was developed for this evaluation concept (figure 6).

Figure 6: Multimethod Approach

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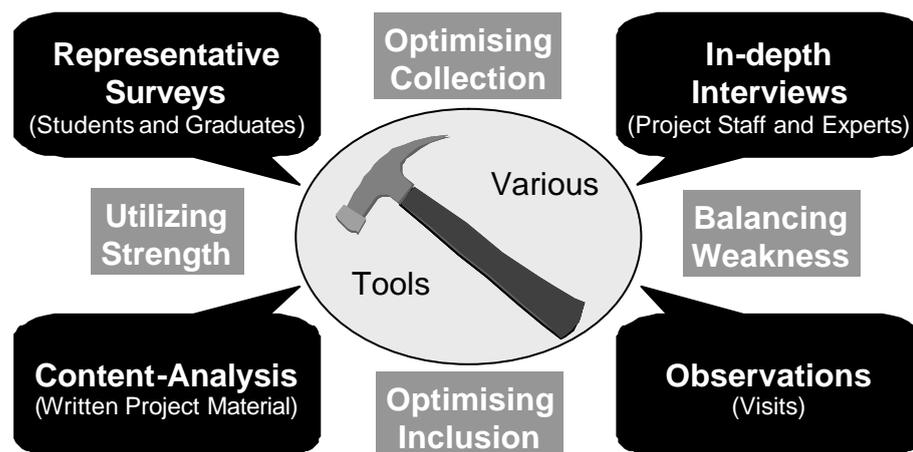
Four main targets of multimethod approach can be identified:

- *Optimising collection*: by using different kinds of data collection methods, the number of information finally collected should be maximized.

- *Optimising inclusion*: not only the number of information but also its range should be maximized to guarantee the inclusion of any important aspect of the project under investigation.

- *Utilizing strength*: for reaching these targets, the strength of various data collection methods have to be utilized as far as possible.

- *Balancing weakness*: contrarily the weakness of each used data collection method should be balanced by using an alternative method collecting the same kind of information.

The multimethod approach will offer evaluation researchers the opportunity to assemble as many as possible valid information on the largest range of subjects which might be useful for evaluating the project and its impacts. The use of several methods of data collection should make it possible to substantiate findings in several ways and for increasing the quality of non-experimentally collected data. With the help of various data sources, the attempt will be made to describe developments within individual areas of (potential) impact as accurately as possible, by, in keeping with the multidimensional model of sustainability, capturing as many directly and indirectly produced, panned and unplanned effects as possible. In conclusion, if possible, various analytic questions aimed at establishing a specific state of affairs will be combined into one indicator, which will serve as the basis for a scaled measurement.

The main task in this phase of evaluation process for the research team is to identify and to select the relevant influence factors by analysing the collected information material. On the next step, these factors have to be ordered and classified for detecting causal relationships between them. As basis for this procedure serves the theoretical model presented above. The *life-course model* is based on a procedural perspective. For empirical analysis this means that the description of the implementation process as well as the capture and – if possible – the explanation of individual internal and external impacts is predicated upon a prior analysis of the individual phases of the overall life-course of project. In keeping with the *impact model*, each area of impact involved should be identified and described. The aim here is to describe the pre-existing structures within the implementing organization (system of goals, social structures, personal, financial, and technical resources) as well as the changes they undergo over time. Another target of multimethod approach is to identify and describe changes within selected, external areas of (potential) impact (e.g. the training and employment system) corresponding with the *diffusion model* and its three basic groups of independent variables (perceived specific features of innovation, organizational elements as internal variables, and environmental factors as external variables).

At this stage the description of general external conditions that could have influenced a given area of (potential) impact is needed. This means that environmental factors are not described in general, but instead in terms of the area of (potential) impact of the implementing organization in which these factors are presumably also active. Thus, for instance, the government budget as environmental factor is discussed within the context of the financial resources

available to the implementing organization or the technological standards of businesses is treated within the context of the level of technical facilities possessed by the training center, and so on. By proceeding in this fashion, external environment factors are not viewed in isolation, but linked instead to the project interventions (independent variable) and project impacts (dependent variable).

Usually, the only way to detect causal linkages between independent and dependent variables in evaluation research is an appropriate comparison. Most evaluation studies face the same methodological dilemma: "many variables [and a] small number of cases" (Lijphart 1971: 685). This means that not all of the interesting correlations between variables can be examined and verified by appropriate statistical procedures. Accordingly, a causal-analysis based approach is only possible to a limited extent. Therefore, as a supplementation of this evaluation concept a *comparative method* was chosen.

The comparative analysis of various vocational-training projects should make it possible to discover similar patterns of development. The basis for this approach is provided by projects that can be categorized into comparable groups based on recognizable criteria. Conclusions about cause-effect relationships are to be made on the basis of the internal coherence of the developmental patterns and causal chains observed. In this context, it is typically only possible to provide a qualitative record of the developmental processes observed, but, wherever possible, quantitative surveys of target population served to enrich the database.

The comparative method should also ensure generalizations from the evaluated project as one special case to usually found causal linkages (figure 7). It is one important target of evaluation research to separate historical uniqueness of each project from common characteristics which help us to draw conclusions for upcoming project work. Although each project is unique (as any historical event), it is not the task of evaluations to write a detailed project history. Instead, the "lessons learned" during one peculiar project should be summarized to improve future project management.

Figure 7: Comparative Approach

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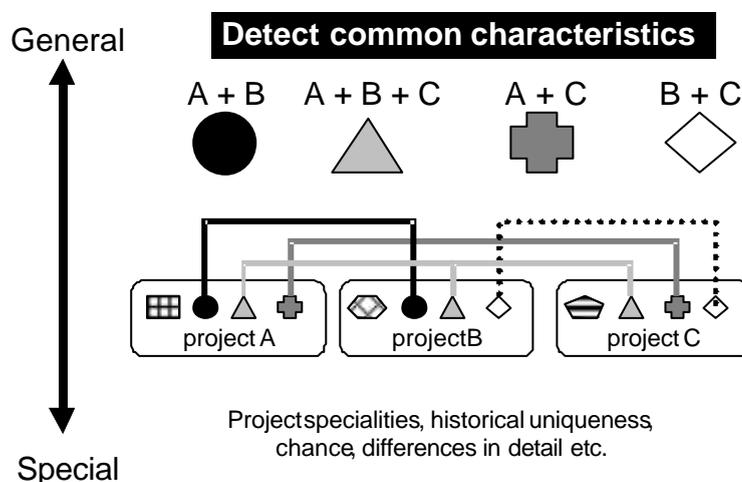
According to this *"bottom-up" approach* from special case to general conclusion, new thesis and theories on the principle performance of projects will be generated which again could be tested in other evaluation studies. Therefore, the *"top-down" approach* of testing general social theories is supplemented by theory-building conclusions as a result of evaluation studies. Hence, this is the reason why evaluation research should be treated as a continuous learning process and the evaluation results should be published to improve scientific knowledge in this field. The evaluation framework outlined here has been proved as very helpful for such an on-going development in various research studies in different cultural environment and on diverse topics (cf. Stockmann, Meyer et al. 2001; Stockmann et al. 2000; Stockmann & Kohlmann 1998; Stockmann & Leicht 1997; Stockmann 1997, 1992; Leicht & Stockmann 1998).

In substantive terms, the used evaluation framework is structured according to the "internal" and "external" parameters defined by organizational and diffusion theory and contained in the impact model:

- In studying project influence, personnel- and material-related interventions are documented and assessed for all phases of its life-course.

- In analysing the implementing organization, the organizational parameters derived from organizational theory are employed, in order to be able to capture changes over time for individual dimensions and evaluate these changes with respect to causal factors (project intervention versus external environmental factor).

- From the array of environmental social systems (the external field of impact), emphasis was placed on two that are of great significance in terms of the objectives of vocational training projects, namely, the systems of training and employment. Depending on the perspective taken, the target populations of project activities, i.e., the students/trainees and employers, are either considered as part of the external sector, and thus of the system of employment and training, or, on the other hand, as part of the organization itself, as its members and participants.

4   CONCLUSION

When conducting an ex-post evaluation, the long-term effects of a project and therefore the sustainability of its impacts are in focus of analysis. The *life-course model*, as one of the theoretical foundations of the evaluation concept presented here, emphasizes a temporal perspective with respect to the historical linkages of decisions on different development stages of one project. In this perspective, sustainability is a result of project performance and will be at least partly ascribed to the used planning or steering instruments. If evaluation research is able to detect management problems and to confirm their causal impact on project performance by comparisons, this result will help to improve future project conduction.

As showed in this paper, *sustainable impacts* can be generated in that organization which implements the project (*internal sustainability*) as well as in the social environments in which these organizations are active (*external sustainability*). *Internal sustainability* consists in the enduring organizational effectiveness of an "implementing agency or organization". It merely

refers to the question "what is left behind" within the implementing organization after finishing the donor assistance. *External sustainability* is considered achieved if there is a successful diffusion of innovations within the social environment of the implementing organization. Therefore, one can judge the amount of external sustainability by asking "what is set in motion" within this social environment.

Vocational training programs are normally carried out by *vocational training centres*, *technical colleges*, or any kind of *secondary school*. Hence, these are the implementing organizations which should be analysed using the *impact model* derived from organizational theory. In general, the main target of vocational training centres, technical colleges, or secondary schools is the progress of its students – limited by the educational level the students had already reached at the start of training program and under pressure of the societal demands for practical use of the knowledge and experience which they learn during their stay in this program. As far as those conditions of training programs steadily change, a continuous impact control and adaptation to these changes is needed. The means to do so are, on one hand, formal and informal structures of organization which determine their performance and, on the other hand, the organizational resources (manpower, finance, and technical equipment) which could be applied for this target. It is one task of evaluation to show the limits of organization's performance and to develop suggestions for improvement. Furthermore, ex-post evaluations try to find out the sustainable impact of intervening projects on this performance, e.g. which innovations are still in use and for which reason these implemented innovations lead to better or worse results than the structures or routines used before.

Having vocational training centres and their targets in view, one result of vocational training projects should be the sustainable *improvement of organizational capacities for adaptation* to changes of its social environment. For to achieve this target, teachers, instructors or other organizational staff has to be trained to fulfil the new claims. In most cases, new educational tools have to be purchased and to be integrated into existing structures, systems, training programs etc. Of course, trainees and their (forthcoming) employers will be affected by the use of these tools and the implementation of the vocational training program. Sometimes regional (and even national) administrations, business organizations, political parties, teachers in public schools etc. are effected, too.

One positive outcome of vocational training projects, for example, is probably the *diffusion of the implemented innovations* to other comparable schools or training programs. Hence, ex-post evaluations should ask whether there are some more or less fundamental *changes in parts of the educational system* observable. Additionally, if some modifications can be found, evaluation researcher should examine the contribution of project performance to these changes and the triggered diffusion process. One can expect that such kinds of changes are also an indication for the success of the new elements within the training program on labour market. By improving the quality of graduates' labour force, an increasing demand from employers is possible. Therefore, ex-post evaluations should also study *changes in employers demand for graduates* and their judgement about training programs quality. *Diffusion effects within economic system* can also be a positive outcome of vocational training projects. For evaluation research, the *diffusion model* presented here can help to identify promoting and hindering factors of such processes.

Although the theoretical constructs used within this evaluation framework are very helpful as guiding principles, they would be worthless without appropriate methodological supplements.

The target of evaluation research is "scientific judgement" which is justified by considering common standards in applying measurement tools. Moreover, the methodological approaches used during the research process have to be defended against criticism from the scientific community. The *adequate use of social research methods* is the only difference between scientific evaluation research and everyone's judgement (cf. Rossi et al. 1999: 4ff.).

The evaluation concept presented here encloses three methical approaches which have been considered of great importance for optimising measurement. Primarily, a *participatory approach* is needed to include the methodological experiences of experts in evaluation research as well as the insider-knowledge of such people who had been personally involved in project performance (in vocational training centres especially teachers and trainers). The readiness of both sides to cooperate is from great importance for quantity and quality of information which can be collected and analysed during the evaluation process.

Another very important aspect to guarantee data quality is to consider the limitations of the methods used for data collection. A *multimethod approach* is suggested for balancing the weakness of each single method and to use its strength. For vocational training projects, the use of standardized survey is appropriate to get answers from as many students and graduates as possible. Contrarily, in-depth-interviews should be used while asking teachers, trainers, employers, or other experts from educational or economic system. In these cases, the target should be the inclusion of each aspect which might be relevant for project performances and standardized questions probably would limit the possibilities to detect such aspects. The interviews should be accompanied by intensive studies of written material and personal visits of the school to avoid the limitations of the interview method.

Finally, *a comparison approach* is launched to support judgements about causal linkages between important variables. While all projects are in one or the other aspect unique, evaluation research tries to accumulate generalized findings. The use of statistical methods is mostly restricted because of the small number of cases, especially compared to the huge amount of variables which should be included in empirical models. Appropriate comparisons between projects with similar targets, students with associated education, or workers with related fields of work will be used to justify the findings. Moreover, these comparisons help to generalize the results of a single project at least as testable assumptions.

The presented evaluation concept has been applied in several different cultural environments and in various policy fields. Especially for the ex-post evaluation of vocational training projects it proved to be a useable foundation for scientific evaluations.

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