



CONNECTING  
GUIDANCE SERVICES  
TO KEY IMPACT  
INDICATORS



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IO3- KEYWAY Guide to  
implementing Key  
Performance and Impact  
Indicators for Guidance  
Services

A3 Methodological guide for  
evaluation of guidance  
impacts (Draft version)

**Project: KEYWAY-Connecting Guidance Services to Key  
Impact Indicators**

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## INTRODUCTION

Career Guidance and Counselling (CGC) is a developing professional field where many different actors, providers, customers, managers etc., have an interest of good quality and the best possible service. At the same time practitioners and managers know about the dilemma between maintain the day to day work with the clients – that should be in the focus of their practice – and the growing number of administrative tasks, need for networking and – not at least – quality measures. Evaluating the own service is for many CGC policies, services or projects a difficult task. One of the reasons is the complexity of the different steps and decisions an organization has to take, if they want to realize evaluations that lead to informative, meaningful and justified results.

The key-way project is aiming to support responsible policy makers, managers or practitioners who want to start with the evaluation and measurement of the impacts of their service. The project developed in cooperation with relevant actors, managers and practitioners different tools that might help in designing and realizing such an evaluation. This guide can be seen as a practical, step by step introduction, giving orientation and concrete help.

### **What this Guide adopts and the various contents that are addressed:**

In the *first chapter* this guide will give an overview about the Indicators that have been developed within the Key-Way project. The product is a “database” that can be used within evaluation- and effectiveness measurements in CGC organizations. The chapter gives a short outline of the indicators structure and links to the products of the project.

The *second chapter* of the guide introduces into the question of the measurement of effects in guidance and counselling. A wide range of literature has discussed “how to measure” effects. In recent years different literature based reviews developed relevant structures for the measurement of guidance. The chapter allows the user to navigate within the different levels of the measurement of impacts.

In the *third chapter* the guide will support the user with his/her goal setting within evaluation and impact measurement procedures. Clear goals that are linked to the organizational needs (why we want to measure impact? what kind of measurement is fitting with our aims?) are a important step before indicators can be chosen and a evaluation design can be developed. To give orientation in the process of the goal setting, the guide provides a systematic logic of the evaluation of guidance impact. The user can navigate between the different levels of evaluation and can choose which levels are of relevance for to reach his/her evaluation goals.

The probably most crucial step in evaluating impacts is the decision for a proper **evaluation design**. On the one hand users might strive to find the easiest way to measure the impact he/she is focusing on. On the other hand, there are methodological arguments that point out the need of a certain design if the results shall be of relevance and high quality. Reading this

chapter can help to decide which steps has to be taken in the evaluation process. It gives a glance of the relative complexity but gives also concrete direction for users.

In **chapter five and six** the guide offers the possibility to use **online instruments** to gather the data from the clients and process the data. The guide will link to different (more or less) easy to use instruments as well as to examples of examples of evaluation instruments we have developed within the key-way project. This might help the user to understand how his or her instrument can look like and we hope to smooth the process of adjusting and developing own data collection instruments. Last not least the chapter provides links to online manuals and tools that are helpful in processing the data.

The **section seven** gives finally ideas how to make use of evaluation results. Different forms of publication are addressed and some ideas are developed how results can be distributed and used for different purpose.

## CHAPTER 1. INDICATORS- SOURCES AND DATABASE (LINK TO O1, O2)

The outcomes from O1 and O2 are the main sources for the evaluation

We need to clarify how does the database look like

The indicators need: a) description of how they are relevant for evaluation b) indicators need to be transferred to usable items

### Product

- we produce a „how to“ for the use of the database
- we produce exemplary sets of items ready for use (how many? For which indicators?)
- the whole team need to clarify some aspects (how does the database look like? Do we provide Items for some/each indicator?)

## CHAPTER 2. BASIC TERMS AND MODELS FOR THE MEASUREMENT OF EFFECTS IN CAREER COUNSELLING AND GUIDANCE

The measurement of guidance/counselling impacts requires some basic knowledge. This contains basic terms and the logic of input, process, output and outcome of interventions. We point also to limitations and preconditions

### Product

- Users get an idea of what they can evaluate and of how to combine the different levels

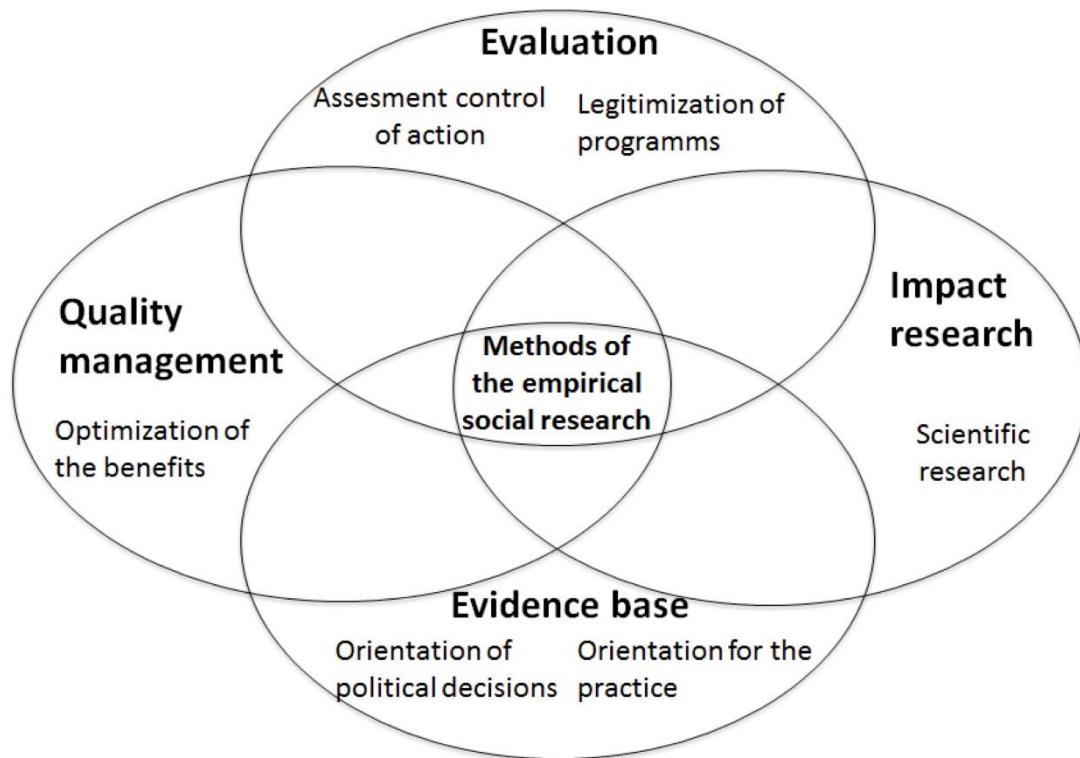
The measurement of impacts of CGC is an important, interesting and somehow demanding task. This chapter aims to transmit some of the knowledge helping to understand and design evaluation procedures to discover the impact (or different impacts) of CGC services. To do so the chapter will discuss the following aspects:

- ✓ Basic terms of “evaluation, impact measurement, and evidence”
- ✓ A framework describing the link between input, process, outputs and outcomes
- ✓ The different levels of impact that might result from a CGC activity
- ✓ The need of understanding the limitation of impact measurement

### **2.1. Basic terms of “evaluation, impact measurement, and evidence”**

To provide a foundation for the guide this chapter introduce some basic concepts and a number of terms that will be used in this context. This might help to navigate in the jungle parallel concepts. At the same time, it is clear that a short introduction can't provide a deep discussion. You will find links for further reading at the end of the document.

Typically, the scientific and practical discourse provides concepts that have some overlapping in their approach and their aims. The Figure 1 provides an overview about four relevant concepts.



**Figure 1:** Four different concepts, differences and overlapping (Schiersmann/Weber 2016)

In the context of this guide we use mainly the two terms evaluation and impact research/measurement. **Evaluation** means the assessment and the control of an ongoing or finalized program or intervention. Often the reason of evaluation is the legitimization of the activity (e.g. against the invested resources). However evaluation can follow a broad range of evaluation questions or aims (not just the impact of an action) and it might focus on very different levels (e.g. policy, concepts, practices). In this respect there is an overlapping to impact research. **Impact measurement/research** is a activity to discover impacts a intervention release. Because of the methodological difficulties impact measurement/research need to use high quality indicators (see chapter 1) and control the methodological design (see chapter 4). While such an approach is typically used in scientific research, today we observe a need for practice oriented measurement of impacts. One reason might be the quality management instruments implemented more often also in social services (as CGC). **Quality management or quality assurance** are broad concept typically consisting of a process idea (planning, implementation, evaluation, reporting, and quality improvement) (see Glossary). In this context impact measurement might be one (important) step in the quality circle. **The evidence base concept** in the social sector is derived mainly from fields like medicine. The idea is, that such interventions should be used that has proven their impact in a (higher) number of studies. In the CGC field some (qualitative analytical) studies has been undertaken

to investigate the evidence this field has developed yet (e.g. ELGPN 2015). One important outcome of such evidence studies might be the knowledge of relevant indicators can be used for further data collection (see chapter 1). In the centre of the picture it is stated, that the methods used are relevant for all four field. Thus methods for empirical research are also the base for the data collection and analyses as it is presented in this guide.

Aside this four basic concepts the guide will use some other terms and concepts. A first overview is given in Table 1. The collection of terms might not be complete but is giving orientation in the further reading.

**Table 1.** Basic Terms for the Evaluation of CGC Impacts (Source: ELGPN, 2015 p. 72-75)

<p><b>Before-and-after studies.</b> Taking two snapshots before and after implementation of the programme, to try and identify what changes have happened as a result.</p> <p><b>Effectiveness.</b> Extent to which the objectives of a policy or an intervention are achieved, usually without reference to costs.</p> <p><b>Evaluation.</b> An assessment of an ongoing or completed development intervention.</p> <p><b>Evidence.</b> The information presented to support a finding or conclusion. Evidence should be sufficient, competent and relevant. There are four main types of evidence: observations (obtained through direct observation of people or events); documentary (obtained from written information); analytical (based on computations and comparisons); and self-reported (obtained through, for example, surveys).</p> <p><b>Guidance outcomes.</b> Guidance has economic, social and learning outcomes, and these reflect both its personal impact and the wider societal benefits.</p> <p><b>Impact.</b> General term used to describe the effects of a programme, policy or socioeconomic change. Impact can be positive or negative, as well as foreseen or unforeseen.</p> <p><b>Indicator.</b> Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.</p> <p><b>Intervention.</b> A deliberate and organised attempt to impact on the career of an individual or group.</p> <p><b>Outcome.</b> Positive or negative longer-term socio- economic change or impact that occurs directly or indirectly from an intervention's input, activities and output.</p> <p><b>Output.</b> Immediate and direct tangible result of an intervention.</p> <p><b>Quality assurance.</b> Activities involving planning, implementation, evaluation, reporting, and quality</p>
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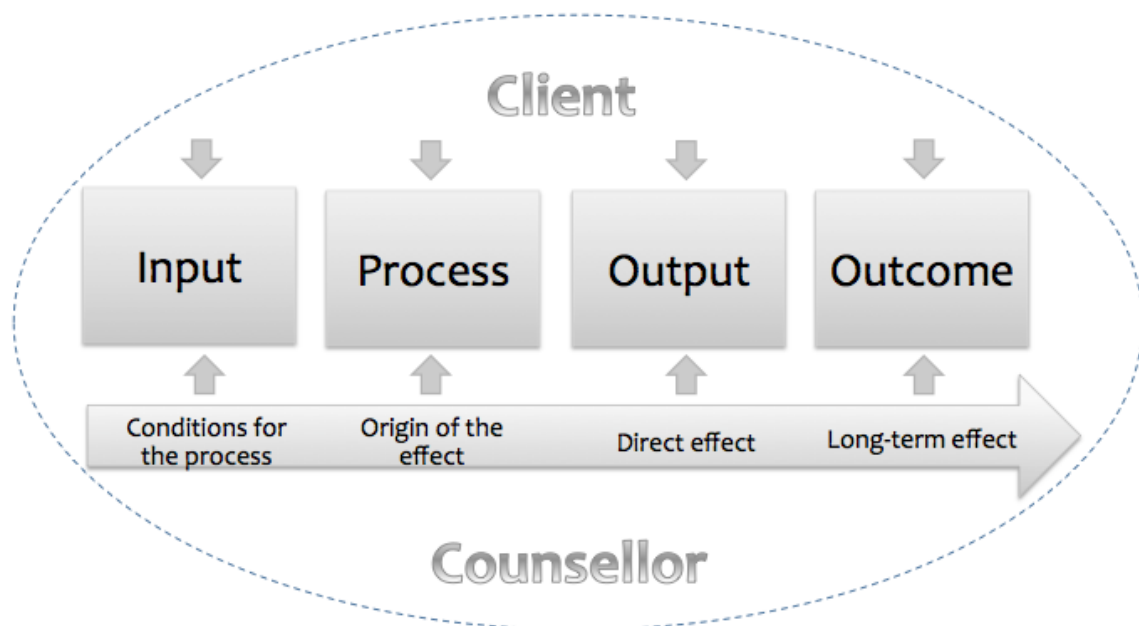


improvement, implemented to ensure that guidance activities (content of programmes, design, assessment and validation of outcomes, etc.) meet the quality requirements expected by stakeholders.

**Research methods.** An approach to collecting and analysing data for the purpose of exploring an issue or answering a question.

## 2.2. A framework describing the link between input, process, outputs and outcomes

Outputs, outcomes (as forms of impacts) should be understood in a broader frame. An intervention or a service resulting in a positive outcome has taken place in a certain context (that is described as the “input” for the intervention) and it has undergone a certain process. The connection of these dimensions are shown in figure 2. It states the relevance of input and process for the outputs and outcomes (impacts) of an intervention. And it shows, that the practitioner/counsellor as well as the client has an effect on this dimension. This is relevant if a service provider has evaluated the impact of the service to compare results with other services to develop measures to improve the service.



**Figure 2:** Dimensions of career guidance and counselling (Schiersmann, Ch., & Weber, P., 2016)

- **The input dimension:** This dimension sets the conditions for the process and affects indirectly the outcomes. From the client side, an important input factor is the complexity and sort of the problem as well as his/her initial situation (social, cultural background, gender etc.). These are important aspects because, for instance, more complex problems are more difficult to solve. On the other hand, the counselling setting (face to face, by telephone, internet based), the number of participants (per counsellor), the qualification of practitioners or temporal factors (e.g. number and length of the counselling sessions)

have an impact to the process as well as to the outputs and outcomes. The conclusion might be, that even in a evaluation that focus mainly on the impact of the intervention should capture some information about the input dimension (see chapter 4).

- **The process dimension:** Also in this dimension, we can distinguish between client aspects and aspects from the professionals' side. From the individuals side his/her resources are affecting the quality of the process. Such resources might be the intellectual capacities, the affective situation and his/her motivation for change. It is for instance very likely that a client with a clear personal aim might have a stronger outcome from a service than a client that is discouraged and unclear about his future or as a client who is sent to the service. From the practitioners' side, it is mainly his or her ability to set up a helpful change process. This might be oriented on theory and practice based concepts or on factors for effective interventions. The use of methods, materials and actions in a good and synchronized way with the client as well as clear agreements (at the beginning and the end of a session) might be other examples of professional action. However, the process of the intervention is on stake when we look to the impact of a service (e.g. the evaluation shall indicate if the service as it is realized has an impact to peoples' life and societal goals in the broader sense). If an service measures its outcome without knowing the process dimension it is very difficult
- **The output dimension:** The output dimension describes the immediate impact of a intervention, e.g. a counselling session. Outputs can be measured directly in or after a activity. Often evaluation focus on this kind of outputs from the clients' side. The satisfaction of the clients (with the process or the result he/she has developed during a session) are examples for such outcomes, acquired information or knowledge is another. Also goals or plans developed and set in the session could be direct outcomes (the client cannot prognoses if he/she will realize it, but it can be seen as an output, that it is there). Also direct after the session an output evaluation could ask if the perception of a problem is reduced, if an open question is clarified or a decision is made or prepared ("Now I know how I can handle my problem, I gained criteria for my decision making"). Also important and measurable is the estimation of personal resources, potentials or strengths by the client ("I can see now, what my strengths are"). In CGC context often of interest are the gained information during a session (Information on education or labour-marked). Last not least emotional aspects like the reduction of emotional instability or the extension of positive affects ("I am more confident", "my optimism raised") can be of relevance. All these outputs do not state a change in the "real world" (like gaining a better job or enrolling in an education) but they are important predictors for more successful action after the session.

- **The outcome dimension:** The outcome dimension does focus on medium and longterm impacts. Thus, this dimension does not just focus on the individual client but also on higher aggregated levels like the organizational, economic or the societal frame (see impact map, see next section).

On the individual level outcomes can be linked directly to the person, its personality or competence. Thus, many outcomes could be of interest, typically evaluation focus on such aspect that are linked with the overall aims of the CGC service. Personal factors in play are for instance self-efficacy, self-confidence or emotional control because there is some evidence, that such factors have a positive effect also on further outcomes. At the same time, it is not clear (and thus a question of evaluation) if an achieved output is stable over a relevant duration, because this would be a precondition that this outcomes can affect other outcomes on the action level. Aside personal factors gained competences can be an outcome of a CGC service. Such are described in concepts like “career management skills” or “career adaptability”, “problem solving” or “self-organization”. Such concepts mostly consist of a set of skills in a certain combination<sup>1</sup>. But also concrete competences for information processing, decision making, goal setting, networking or job search can play a role.

On an action level evaluation focus on outcomes that need to be realized within the social world. The prognoses would be, that better personal factors lead to better outcomes of this level. But to prove the impact on these aspects the evaluation of realized educational and employment related steps can be of interest. This can be a started or completed qualification or training, an adjustment of the educational path, or of the prevention of a drop out. Regarding employment indicators might be the (new) employment situation, a mastered career change, starting a self-employment and with respect to an economic impact a better payment.

Again it is clear, that the interest regarding such outcomes is typically linked to the focus of the CGC service. Looking on this kind of outcomes is not just finding any indicator for success but focusing on such aspects that stand behind the existence of the CGC service.

Looking on the economic or societal outcomes (see Impact Map) we have on the one hand a parallelism (an employer organization or a public employment service offering CGC might have also interest on achieved education of employment shifts) and on the other hand we have important change: The organization, the community or the society focus on a comparison within aggregated data and the balance between those who have participated in a service or

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<sup>1</sup> Thus a broad indicator like „Career Adaptability” needs a operationalization for its four concepts and a set of items (questions) for each sub-concept (exploration, planning ...).

intervention have (e.g.) better access to education, better educational achievements, less drop outs, faster transition to employment, higher productivity. These examples might be extended, typically the evaluating institution or organization need to define the goal of a program or policy and will adjust the indicators of evaluation regarding those.

### 2.3. The different levels and the actors interest in evaluation

This paragraph focus on the different levels of impact that might result from a CGC activity and the link to the different actors that might have an interest in the evaluation.

Already in the presented model that distinguishes between “output” and “outcome” it is visible, that different impacts are not of the same kind. This leads to consequences in terms of the planning, realization and interpretation of the collected data. One evaluation frame that helps to understand the differences of impacts is provides by Kirkpatrick & Kirkpatrick (2008) (within the education and training sector) and adapted to the CGC practice (ELGPN 2015).

**Table 2.** Impact level (ELGPN 2015, derived from Kirkpatrick & Kirkpatrick 2008)

<p><b>Reaction (Impact level 1).</b> How participants in guidance describe their experience.</p> <p><b>Learning (impact level 2).</b> The set of knowledge, skills and/or competences an individual has acquired and/ or is able to demonstrate after completion of a guidance activity or through participation in the guidance process.</p> <p><b>Behaviour (impact level 3).</b> Any changes that it is possible to observe in how participants act following a guidance intervention.</p> <p><b>Results (impact level 4).</b> Whether it is possible to observe any changes to systems, organisations and individuals following a guidance intervention.</p>
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In this model it is clear, that an evaluation procedure need *to decide* on which impact level it shall focus. A second consequence is relevant for the evaluation design, because a reaction is easier to evaluate than a learning and to observe the results of behaviors needs another *time perspective* than the latter ones. If one want to evaluate results he/she needs a broader scope and comparison of the evaluated aspect with data coming from the system or organization (see chapter 4).

In the context of the goal setting and the decision about the impact level of an evaluation (see chapter 3) the question “who is interested in the evaluation and its result” comes into play. Typically different actors have different questions. It might be, that practitioners or a team firsthand look on the reaction of the clients and use this as an impulse for own reflection or

improvement of a service. But also the management might show the satisfaction of clients with the service offered. Often practitioners want to know more about the outcomes in terms of learning. Did the intervention make a difference in the client? Is he/she now better equipped to work on his plans? Did he/she gain competences relevant for career planning and sustainable education and work? The organization or policy level in contrast might be eager to evaluate the realized action of clients (behavior). Did the service support people so that they have made a change? Is the change in line with the aims of the service or the organization? And last not least: Does all this changes have an lasting impact (results) on the longer run and in comparison with those who did not participate? This level often is linked to the question, if the investment into the service payed out after all.

It is obvious that the four levels have each one its relevance. At the same time for each level different indicators are relevant and a different design is needed. Before we go into the planning of a concrete evaluation the next section gives some hints about the difficulties and limitations of impact measurement.

#### **2.4. Understanding the limitation of impact measurement**

- ✓ When climbing up the ladder from impact level 1 to impact level 3 or 4 the complexity of intervening variables is increasing at the same time
- ✓ If we want to evaluate more complex indicators we need to adapt more demanding evaluation designs
- ✓ Evaluation effects the further development of programs. If we have reductive approach in choosing impacts to measure we risk to reduce the scope of the intervention in the future

**Table 3.** A note of caution on using and interpreting evidence/impact (ELGPN 2015, p. 14)

“It is important to remember that any attempt to measure impact is inevitably reductive. Any educational activity such as lifelong guidance leads to a range of impacts, many of which are difficult to predict or measure. For example, a relationship built during work experience may not result in a job for the individual involved, but that individual may pass on an opportunity to a friend or family member. Such happenstance connections are difficult to identify, but this does not make them any less real.

This is one reason why it is important that monitoring and evaluation processes do not skew the delivery of programmes in ways that reduce their potential to have wider impacts. For instance, an excessive focus on immediate employment outcomes may have negative impacts in the long term if it reduces the opportunity for individuals to rethink their careers and consider more strategically where their talents might be best directed.

Such concerns about ensuring that lifelong guidance is understood and evaluated in the round highlight the importance of using a range of different evaluation approaches. Quantitative measures can identify relationships between interventions and measurable impacts. Qualitative measures can help to identify broader and more subtle types of impact. There is therefore considerable value in mixed-methods approaches. However, it is also important to remember that no research can ever describe all of the impacts that result from an intervention” (ELGPN, 2015, p. 14).

## CHAPTER 3. GOAL SETTING AND IDENTIFICATION OF INDICATORS

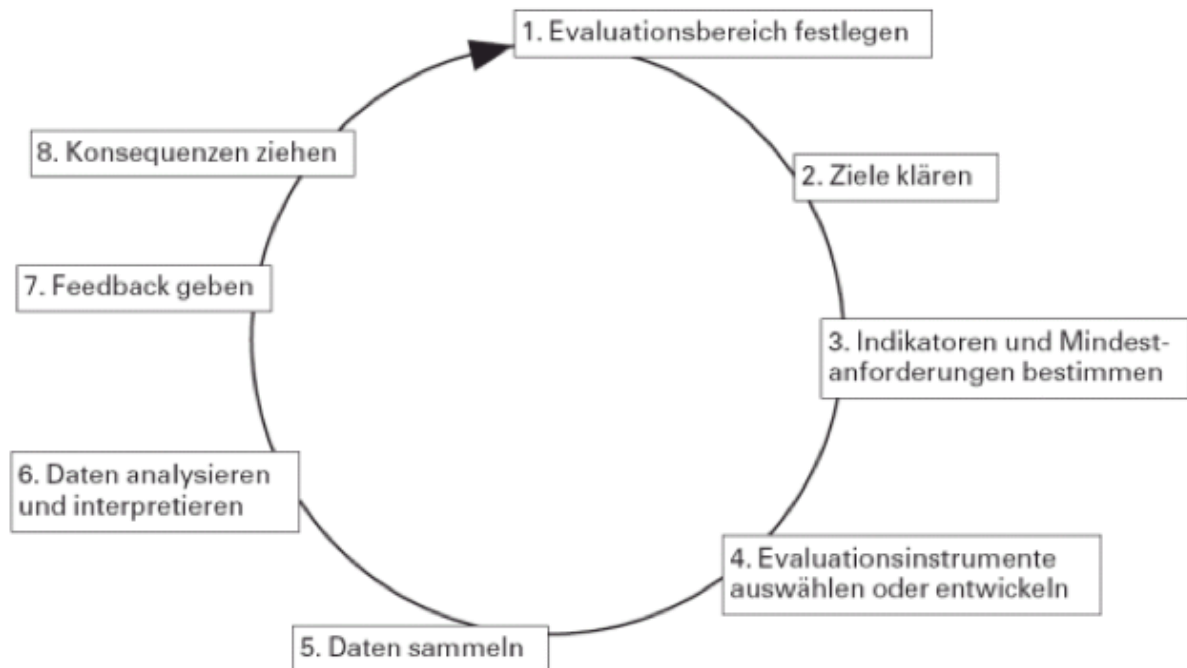
In the *third chapter* the guide will support the user with his/her goal setting within evaluation and impact measurement procedures. Clear goals that are linked to the organizational needs (why we want to measure impact? what kind of measurement is fitting with our aims?) are an important step before indicators can be chosen and an evaluation design can be developed. To give orientation in the process of the goal setting, the guide provides a systematic logic of the evaluation of guidance impact. The user can navigate between the different levels of evaluation and can choose which levels are of relevance for to reach his/her evaluation goals. In addition, we develop three examples to make the link between goals and Indicators more feasible.

- ✓ Why are goals important? - Overview about the evaluation process
- ✓ What questions should an organization or institution discuss and answer in the process of goal setting?
- ✓ How do you link goals to indicators? – three practical examples

### 3.1 Evaluation and overview about the evaluation process - Why are goals important?

Evaluation is the measurement and interpretation regarding a certain action or the results of an action (Kuper 2005, p. 7) and more specifically a "methodically controlled, use and evaluation-oriented form of collecting and evaluating information" (Kromrey 2000, p. 22). Evaluating the effect or impact of counseling can be a goal for the evaluation. In this case evaluation is using the methods of impact research (see below). But as always in life, goals should be specific and measurable. Thus, it is essential to define goals for the evaluation (what should be evaluated) and criteria (indicators) to be used for collection of data and the further processing (see evaluation process). In evaluation procedures, the step of using the results (for example, as information for measures of quality development, legitimizing the work in reports etc.) is part of the evaluation process (see chapter 7). The evaluation of Impact of CGC is demanding in terms of the methodology. The logic of the measurement of impact includes a connection between intervention (for example, realization of specific counseling intervention) as an independent variable and the effect or impact (effects on the person seeking the service as a dependent variable) (see Greif 2008, 275). This effect must be demonstrated by statistical methods (e.g., statistically through correlation or factor analysis). Ideally, an experimental or a quasi-experimental design would have to be realized, especially experimental and control groups (see Kromrey 2000) (see chapter 4). This is also increasing the requirements for the survey tools and the sample size to ensure validity and reliability of the results.

Evaluation processes. All kind of evaluation and also the evaluation of the impact of a CGC intervention or service can be described in a process (see Figure 3).



**Figure 3:** The process of evaluation (need to be translated)

The starting point is typically the area of evaluation, e.g. a certain service or intervention. In larger organizations or contexts, it might be important that a decision is made that allows to (1) focus the evaluation on a certain and specific area or service (and not to all kind of services that are offered). Knowing that the objective(s) need to be defined. The clearer the objective and the more concrete these are broken down to measurable goals, the easier the further steps are. The map of indicators and the chapter 2 might give a first orientation when an organization or institution decide about this. The next step (3) would be than the identification of indicators and the clarification of the conditions the data collection for the data collection regarding these indicators are. One example is, that some indicators might imply that the data collection need to take part not directly after the session but e.g. 3 month later. The fourth step (4) is the design of the data collection tools (e.g. questionnaires). As stated earlier many of the indicators cannot be measured with one question. These might require to use a set of items/question that allow a valid measurement of the broader indicators. Another example for this task is, if an organization or institution want to evaluate a service (or different services) against existing data, e.g. local school drop-outs. In such a case in this step the instrument for the data collection need to be adjusted to the existing data, so the collected information and the existing statistics can be matched and compared later on. In step (5) the data collection need planned and realized. This includes the production of the questionnaires (e.g. paper pencil,



interview, online-questionnaire) (see chapter 5) and the clarification of the practical conditions (for example, the selection of those clients who take part, the information to the counselors and the clients, the production of invitations and reminders). After a relevant number of data is collected or the data collection process has ended the data need to be analyzed with statistical methods and transferred into readable tables, texts and/or figures. Dependent to the objective of the evaluation (6) the results are communicated to the relevant stakeholders. This might be the policy level, the management and/or the practitioners as well as the customers and clients of a service. It is important to have good agreement on who has access to the results and what they are used for (this question should be discussed already when setting the objective!). Part of this step is also the planning the reporting function (for example the publishing of the results). Last not least and very important (8) the use of the result for the development of the practice or interventions is an important function. Not seldom evaluation results are produced but not used. This links the evaluation back to the quality management (see Chapter 2).

### **3.2 What questions should an organization or institution discuss and answer in the process of goal setting**

The description of the overall process is made clear, that the definition of the objective and the description of concrete goals is of high importance. Without a management team or organization does not know what to choose from all the possible indicators, without goal there is not clear how complex (or less complex) the evaluation will be, what kind of resources are needed and how the aimed result can be used for communication about the service or its improvement.

When planning your own evaluation, several questions should be discussed and answered at the beginning, which together help to outline the evaluation goal:

- Who are the stakeholders of the evaluation? What is the institutional frame? Who has interests in the evaluation and who is supporting it (with money, time, backing?)
- What should be evaluated? Are there, for example, a client, a financing agency or similar which requires an evaluation? Do we want to use the evaluation for internal discussion or quality development? Do we want to show what we achieve, etc.
- Which aspects of the CGC service should be evaluated? Is it about capturing characteristics of the target group? Do we want to capture the perception of process characteristics? Should direct or indirect impacts of the consultation be recorded? If yes, which level of impact?
- How many clients do we need to reach? Against what kind of information the results can be interpreted? Do we have results from earlier years? Do we have a control group? Is there data available that helps us to interpret our results?

- What happens to the results? Who is processing these (statistically)? How often should be evaluated? Who has access to the results? In which circle are these discussed? Should reports on the results be written and published?

This list of questions could be used in the first meetings when a management team or organization starts to think about an impact evaluation. It can help not to overlook important aspects and guide through the whole process.

### 3.3 How do you link goals to indicators – three practical examples

The last section described the evaluation process and the relevance of clear objectives from a conceptual point of view. Now we use the presented structure to develop three practical examples that try to clarify how goals and indicators fit together. Such examples might help to clarify own evaluation goals and link those to relevant indicators. In the next chapter (4) we present evaluation designs in accordance to the same examples.

**Table 4.** Evaluating a vocational guidance intervention (pre- and post-intervention design)<sup>2</sup>

<b>Category</b>	<b>Description</b>
<b>Context and frame of the Evaluation</b>	A public service delivered for young person in the transition from secondary school to post-secondary school and vocational training. The evaluation shall inform about the quality of the service (impact concerning the objective of the instrument) and allow comparison between e.g. different service providers.
<b>What should be evaluated, what for? (goals)</b>	The evaluation focus on the effects a specific intervention has on the readiness for vocational decision making of young persons (9 <sup>th</sup> grade)
<b>Aspects of the service that should be evaluated</b>	The service is based on the assumption that an intensive guidance intervention (mainly in a counselling setting) help the participant to have a better transition from secondary to post-secondary education (including vocational training). This is operationalized with a concept of career choice readiness. The evaluation follows the assumption that this kind of readiness is significantly higher after the intervention than before.
<b>What is the impact level?</b>	Impact level 2 (see section 2): The set of knowledge, skills and/or competences an individual has acquired and/ or is able to demonstrate after completion of the guidance intervention.
<b>What are relevant indicators?</b>	The concept of career choice readiness is a subset of indicators as described in the map of indicators in the section "competence". The indicators chosen are: <ul style="list-style-type: none"> <li>• problem awareness (outcome)</li> <li>• vocational self-perception (outcome)</li> <li>• level of vocational information (outcome)</li> <li>• decision-making behavior (outcome)</li> <li>• activities to realize plans (outcome)</li> </ul>

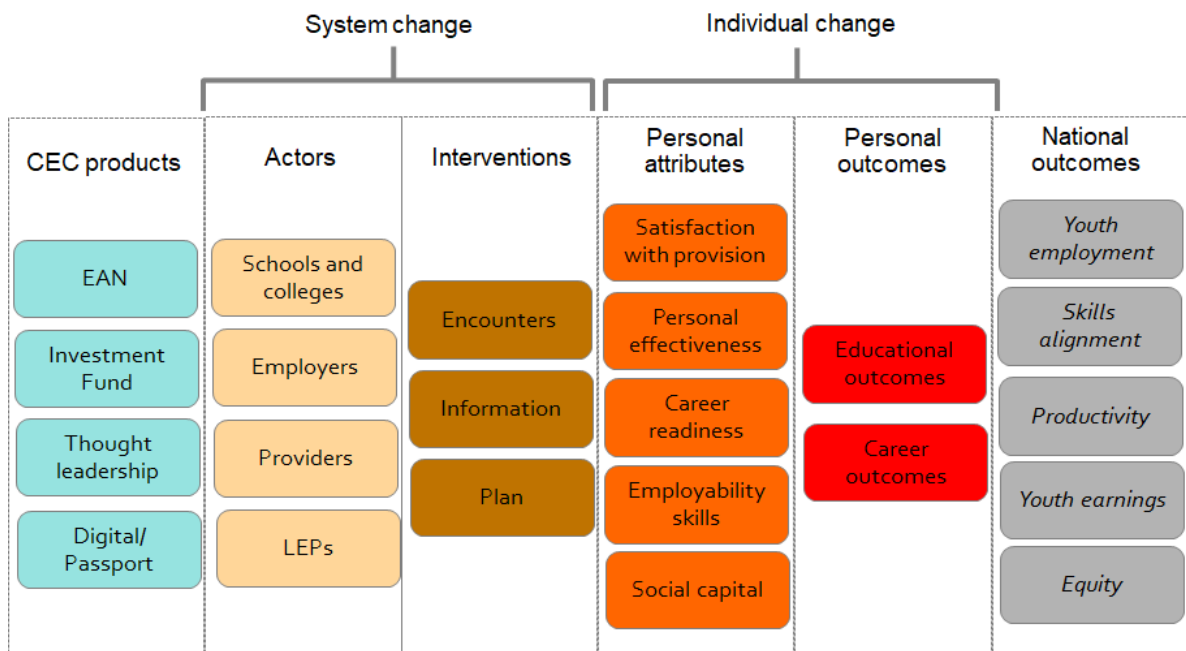
**Table 5.** Evaluating a program for adult career counselling (input-process-output/outcome)

Category	Description
<b>Context and frame of the Evaluation</b>	A regional/national project piloting a new form of career counselling for adults.
<b>What should be evaluated, what for? (goals)</b>	The evaluation shall test the quality of the service and the impact for different target groups (I.e. adults with different backgrounds using the service). The outcome shall be monitored also at a second point 3 month after the end of the counselling process.
<b>Aspects of the service that should be evaluated</b>	The evaluation tries to discover the effects of the intervention within the context of the diverse problems clients present in the counselling. It should discover the impact of this aspects as well as the positive experience in the process and relevant outputs. Regarding the outcomes some aspects shall be measured (also after the final sessions).
<b>What is the impact level?</b>	Reaction (Impact level 1). How participants in guidance describe their experience. Learning (impact level 2). The set of knowledge, skills and/or competences an individual has acquired and/ or is able to demonstrate after completion of a guidance activity or through participation in the guidance process.
<b>What are relevant indicators?</b>	<ul style="list-style-type: none"> <li>• complexity of the problem (input)</li> <li>• positive experience (intra-personal, such as dealing with emotions, problem-solving, making decisions) (process)</li> <li>• information gained through the consultation (output)</li> <li>• optimism to deal with one's own situation (output)</li> <li>• increase of career opportunities (output)</li> <li>• Clearness of educational and professional goals (output)</li> <li>• increase of self-efficacy (outcome)</li> <li>• increase of self-esteem (outcome)</li> </ul>

**Table 6.** Evaluating the national service – impacts on national level

(Combination of outcome measurements with aggregated data)

Category	Description
<b>Context and frame of the Evaluation</b>	A new form of career guidance service provided in selected schools and by local authorities. The service was developed in the context of shortages of qualified employees. The evaluation is a comparison of those schools realizing this service in comparison to national average and amongst each other. The evaluation provides information to policy and practice on national/local/school level.
<b>What should be evaluated, what for? (goals)</b>	The objective is to establish a monitoring system delivering data in a continuing way.
<b>Aspects of the service that should be evaluated</b>	The whole monitoring system try to cover a broad range of aspects (interventions, personal factors, personal outcomes, national outcomes).
<b>What is the impact level?</b>	<p>Behavior (impact level 3): Any changes that it is possible to observe in how participants act following a guidance intervention.</p> <p>Results (impact level 4): Whether it is possible to observe any changes to systems, organizations and individuals following a guidance intervention.</p>
<b>What are relevant indicators?</b>	<p>The whole model (input, process, output, outcome) is very broad and covers 50 Indicators. Focusing on the impact levels 3 and 4 the indicators are (see Figure 4) (not complete):</p> <ul style="list-style-type: none"> <li>• Education: attainment/qualification in schools taking part (compared with national average) (individual outcomes)</li> <li>• Education: % of STEM qualification (Science, Technology, Engineering and Mathematics) (individual outcomes)</li> <li>• Education: % of apprenticeships (individual outcomes)</li> <li>• National: number and % of young people aged 16-19 who are NEET (national outcomes)</li> <li>• National: number and % of young people aged 16-19 who are unemployed (national outcomes)</li> <li>• National: number and % of employers reporting skills shortages (STEM qualifications) (national outcomes)</li> <li>• National: Productivity. National/regional GVA (Gross value added) per head (national outcomes)</li> <li>• National: Earnings. Average Earnings of 18-24 years old (national outcomes)</li> <li>• National: Equity. Improvements in social mobility (national outcomes).</li> </ul>



**Figure 4:** Theory of Change (The Careers and Enterprise Company (CEC), 2017)

### 4.1. Evaluation design: conceptualization

An evaluation design is a plan for conducting an evaluation. Every evaluation is essentially a research or discovery project. The research may be about determining how effective the program or effort is overall, which parts of it are working well and which need adjusting, or whether some participants respond to certain methods or conditions differently from others. If the results are to be reliable, it has to give the evaluation a structure that will tell us what we want to know. That structure – the arrangement of discovery- is the evaluation's design.

Some of the most common evaluation (research) questions are:

- *Does a particular program or intervention – whether an instructional or motivational program, improving access and opportunities, or a policy change – cause a particular change in participants' or others' behavior, in physical or social conditions, health or development outcomes, or other indicators of success?*
- *What component(s) and element(s) of the program or intervention were responsible for the change?*
- *What are the unintended effects of an intervention, and how did they influence the outcomes?*
- *If you try a new method or activity, what happens?*
- *Will the program that worked in another context, or the one that you read about in a professional journal, work in your community, or with your population, or with your issue?*

### 4.2. Evaluation design(s): typology

#### 4.2.1. Selecting a design

Before deciding on the most appropriate evaluation design, it is important to have clear about the primary evaluation questions. Once it has been defined the most important evaluation questions, there are several designs that may be able to adequately answer the evaluation question. It can be selected a specific design by considering the following:

- *Which design will provide with the information we want?*
- *How feasible is each option?*
- *How valid and reliable do our findings need to be?*

- *Are there any ethical concerns related to choosing a specific design?*
- *How much would each option cost?*

The logic of the measurement of effects calls for the design of different designs.

#### **4.2.2. Types of research designs**

Below are described several types of research designs that offer suitable options depending on the specific needs and research questions.

##### ***A) Process-output measurements (direct) after the intervention (t1)***

- Impact dimensions of counselling: Output: Direct effect
- Impact dimension: Output
  - Client: Satisfaction of the clients (with the process and the results); Acquired information/knowledge; Acquired/evolved skills/competencies, e.g: problemsolving, decide, apply, emotional control, reflection of attitudes, set goals and achievement of objectives, identify personal resources, potentials and strengths
  - Counsellor: Professional further development because of advisor experiences (short-term)
- Results of Research: Individual outputs:
  - Pre-post measures of satisfaction, wellbeing or emotional regulation; strengthening of trust in developmental perspectives, increased goal clarity and reduction of uncertainty.
  - Interactive influence of the intervention with international and external factors.

##### ***B) Outcome and process-outcome measurements (t2), e.g. 3 month after intervention***

- Impact dimensions of counselling: Outcome: Long-term effect
- Impact dimension: Outcome
  - Client:
    - Individual level: Intrapersonal factors (self-efficacy, self-confidence, skill management); Education (completed/additional qualification; new employment situation; employment; career change; starting a self-employment; better payment/new career step; long-term satisfaction with the counselling)
    - Organizational level: cost-saving by effective job placement; companies (cost-saving because of a small dropout rate of the apprenticeships and an appropriate continuing education rate)
    - Societal level: increasing employment rate; higher final degree rate; suitable crossover of employment; increased recognition of educational qualifications (e.g.migrants); increased access to education/labor market for

specific target groups; full utilization of the employment market; better use of the labor force potential; higher tax revenues-payroll tax-; lower social spending; strengthening innovation power/entrepreneurial thinking.

▪ Counsellor:

- Professional further development because of advisor experiences (long-term)
- Effects on the counselling service
- Social esteem of counselling

• Results of Research

- Individual outcomes: Competence, e.g. for career-planing, vocational-maturity, CMS; Realizing a transition, e.g. school-work transitions, integration into labour-market and/or further training
- Organizational/social outcomes: Increase of employment rate, taxes and income; Effects of further training on income; Retention and work engagement of employees and talents in companies.

**C) Control group designs/quasi control group designs**

The evaluator gathers data on two separate groups prior to and following an intervention or program. One group, typically called the experimental or treatment group, receives the intervention. The other group, called the control group, does not receive the intervention.

If we are implementing a program in which random assignment of participants to treatment and control groups is not possible, a quasi-experimental design may be the best option.

Let's review below the most common research designs:

✓ *Pre-experimental design*

Pre-experimental designs are the simplest type of design because they do not include an adequate control group. The most common pre-experimental design is the pretest/posttest design. A pre- and post-intervention design involves collecting information only on program participants. This information is collected at least twice: once before participants receive the treatment (baseline information) and immediately after participants receive the treatment.

A pretest/posttest design can be effective for evaluating:

- Changes in participants' knowledge (e.g. about college or financial aid)
- Changes in participants' attitudes towards college
- Changes in participants' grades and test scores



This type of design is the least rigorous in establishing a causal link between program activities and outcomes. However, findings using this design may be enough to indicate our program is making a difference depending on how rigorous the proof needs to be, proximity in time between the implementation of the program and the progress on outcomes, and the systematic elimination of other alternative explanations.

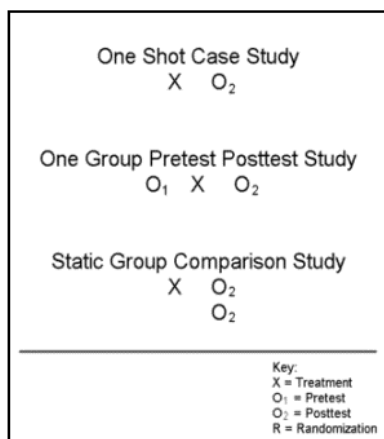
### Characteristics of Pre-Experimental Designs

- Not an authentic experimental design.
- Design does not control for many extraneous factors.
- Subject to many threats to validity.
- Typically conducted for exploratory purposes.
- Usually convenient and financially feasible.

The three types of pre-experimental designs are:

- The one-shot case study.
- A one group, pretest / posttest study.
- The static group comparison study.

The following figure provides more specific insight on these designs:



**Figure 5:** Pre-experimental Designs

(<http://allpsych.com/researchmethods/preexperimentaldesign.html>)

✓ *Experimental design*

If is needed more substantial evidence, the pretest/posttest design is not recommended. The best evidence can be achieved through an experimental design, in program evaluation and research. A good experimental design can show a casual relationship between participation in our program and key student outcomes. The key to this design is that all

eligible program participants are randomly assigned to the treatment or control group. When random assignment is used, it is assumed that the participants in both the control and treatment groups have similar attributes and characteristics.

The purpose of a true experimental design is to control bias. In a true experiment, differences in the dependent variables can be directly attributable to the changes in independent variable and not other variables.

Characteristics of Experimental Design

- Research controls manipulation of the intervention or treatment.
- Participants are random assigned to groups.
- Intervention or treatment occurs prior to observation of the dependent variable.

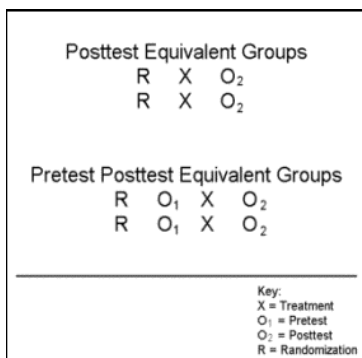
Strengths

- High internal validity.
- Causal relationships between variables can be found.

Limitations

- Limited external validity (generalizability) due to the controlled experimental environment.
- Ethical concerns.

A model of several experimental designs is provided by next figure:



**Figure 6:** Experimental Designs

(<http://allpsych.com/researchmethods/trueexperimentaldesign.html>)

✓ *Quasi-experimental design*

If it is being implemented a program in which random assignment of participants to treatment and control groups is not possible, a quasi-experimental design may be the best option.

A quasi-experimental design is very similar to an experimental design except it lacks random assignment. Depending on treatment and comparison group equivalency, evidence generated from these designs can be quite strong.

To conduct a quasi-experimental design, it will be necessary to identify a suitable comparison group (i.e., a group of individuals or families that are similar to those participating in our program and can be monitored and be tracked as comparison group).

### Characteristics of a Comparison Group

- Members of a comparison group may receive other types of services or no services at all.
- A comparison group should be similar to the treatment group on key factors that can affect our outcomes.
- Don't assume that the two groups are completely similar. We may have to collect data to try and control for potential differences as part of your statistical analyses.

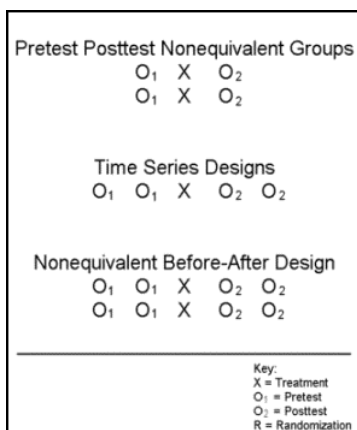
### Strengths

- Enables experimentation when random assignment is not possible.
- Avoids ethical issues caused by random assignment.

### Limitations

- Does not control for extraneous variables that may influence findings.

Examples of quasi-experimental designs are exposed below:



**Figure 7:** Quasi-Experimental Designs

(<http://allpsych.com/researchmethods/quasiexperimentaldesign.html>)

### 4.3. Online examples for the evaluation designs

- <https://www.cdc.gov/eval/steps/focusingtheevaluationdesign.pdf>
- <http://www.uniteforsight.org/evaluation-course/module12>
- <https://sanctuaries.noaa.gov/education/evaluation/design.html>
- <https://www.formsite.com/examples.html>
- <https://www.mdrc.org/publication/sample-design-evaluation-reading-first-program>

Other sources/references:

- [https://www.sagepub.com/sites/default/files/upm-binaries/5068\\_Preskill\\_Chapter\\_5.pdf](https://www.sagepub.com/sites/default/files/upm-binaries/5068_Preskill_Chapter_5.pdf)
- <https://www.samhsa.gov/capt/tools-learning-resources/selecting-appropriate-evaluation-design>
- <http://ctb.ku.edu/en/table-of-contents/evaluate/evaluate-community-interventions/experimental-design/main>

## CHAPTER 5. DATA COLLECTION TOOLS

The data collection is in practice one of the biggest barrier. Online data collection is an alternative to „paper pencil tools“ and especially for outcome and process-outcome measurements designs (t2) in practice most appropriate.

**Table 7.** Technical terminology for the data collection

**Dependent variable (DV).** The primary variable of interest in a study. Researchers seek to determine how dependent variables are influenced by changes in independent variables.

**Independent variable (IV).** In an experiment is the variable being manipulated or changed. In non-experimental studies, independent variables are observed variables that may influence a variable of interest (the dependent variable).

**Treatment or intervention.** In an experiment is the main independent variable that is being manipulated, something that only participants in the experimental group are given. Participants in the control or comparison groups do not receive the treatment or intervention.

**Treatment or experimental group.** A group of study participants who have been exposed to a specific treatment of intervention.

**Control group.** A group of study participants who have not been exposed to a particular treatment. The term is typically used in experimental designs with random assignment.

**Comparison group.** A group of study participants who have similar attributes and characteristics as a treatment or experimental group. This term is typically used in quasi-experimental designs where random assignment has not been used.

**Pretest.** A test administered prior to a specific treatment or intervention. This provides a baseline measure that can be compared to subsequent tests taken after an intervention or treatment.

**Posttest.** A test administered after a specific treatment or intervention. A posttest can help determine how study participants have responded to a treatment or intervention.

**Randomization (random assignment).** The process of randomly placing study participants in a treatment or control/comparison group.

### 5.1. Data collection strategies

The decision on the data collection strategies depends on:

- What is necessary to know: numbers or stories.
- Where the data reside: environment, files, people.
- Resources and time available.
- Complexity of the data to be collected.
- Frequency of data collection.
- Intended forms of data analysis.

### 5.2. Rules for collecting data

- Use multiple data collection methods.
- Use available data, but need to know: how the measures were defined; how the data were collected and cleaned; the extent of missing data; how accuracy of the data was ensured.
- If must collect original data: be sensitive to burden on others; pre-test, pre-test, pre-test; establish procedures and follow them (protocol); maintain accurate records of definitions and coding; verify accuracy of coding, data input.

### 5.3. Data collection techniques

Information you gather can come from a range of sources. Likewise, there are a variety of techniques to use when gathering primary data. Listed below are some of the most common data collection techniques.

#### ✓ *Questionnaires and Surveys*

Surveys or questionnaires are instruments used for collecting data in survey research. They usually include a set of standardized questions that explore a specific topic and collect information about demographics, opinions, attitudes, or behaviors.

#### Key Facts:

- Responses can be analyzed with quantitative methods by assigning numerical values to Likert-type scales.
- Results are generally easier (than qualitative techniques) to analyze.
- Pretest/Posttest can be compared and analyzed.

Examples: results of a satisfaction survey or opinion survey:

- Sample survey on middle school youth risk behavior:  
[https://cyfar.org/sites/default/files/2011MiddleSchool\\_questionnaire.pdf](https://cyfar.org/sites/default/files/2011MiddleSchool_questionnaire.pdf)

## 5.4. Use of data collection tools

There are several advantages that an online tool could provide. Among others, internet is a medium suitable for research into: specific groups (students, organizations, IT professionals, scientists, etc.); „sensitive issues“: higher openness due to anonymity; ethical problems might be „How to get consent from responders“?; problems of data safety; privacy in online surveys, etc.

To use data collection tools for evaluating services and collecting evidence, are needed some skills. The online collection tools provide „how to use“ guides (tutorials, videos ...).

### 5.4.1. How to use online data collection and analysis tools: some tutorials

- **LimeSurvey:** an open-source, free software application, one of the best web questionnaires which offers professionals for free services. The tool allows users to quickly create intuitive, powerful, online question-and-answer surveys that can work for tens to thousands of participants without much effort. The survey software itself is self-guiding for the respondents who are participating.

The online survey which we´re performing on the frame of this Keyway Methodological Guide can be found at this link: <http://impactsurvey.limequery.org/294763?lang=en>. The goal is to support the valorisation and optimization of guidance services by developing a methodological guide on how to implement Key performance and Impact Indicators (KPIs) system.

As main tasks are: design and development of the Guide to implement indicators in Practice; testing the methodology (guide) with guidance services and collecting and processing data and results.

#### Other tutorial sources:

- <https://www.limesurvey.org/>
  - [https://manual.limesurvey.org/LimeSurvey\\_Manual/es](https://manual.limesurvey.org/LimeSurvey_Manual/es)
  - <https://www.limesurvey.org/downloads>
  - <https://www.limesurvey.org/examples>
  - <https://www.limesurvey.org/about-limesurvey/license>
  - <https://www.limesurvey.com/>
  - <https://www.youtube.com/watch?v=MlBr2oFprJE>
- **Keysurvey:** professional survey software which provides the power and flexibility to centralize data and feedback collection across the entire enterprise. Users enjoy a seamless, controlled environment that ensures data is accurate, integrated, and actionable.

#### Example:

- <https://www.keysurvey.com/>

- **Simple Survey:** Tool for a variety of online data collection and analysis projects. SimpleSurvey is a powerful, cloud-based data collection and analysis software tool that lets you easily create, deploy, manage and analyze online surveys, questionnaires, polls, forms and other similar applications. Widely used by professionals in marketing, healthcare, research, communications, human resources, education, government, consulting and other fields, SimpleSurvey can support simple to advanced needs, workflow processes, report distribution, multilingual surveys, team collaboration, data sharing and much more. This instrument allows to: easily create multilingual web surveys and deploy by email, Web links, social media, QR codes, etc.; create web forms for information requests, event registrations, etc.; incorporate quick polls in your newsletters or web site; view reports online, save to PDF or export Excel, integrate with Excel.

Examples:

- <https://simplesurvey.com/examples/>

Other examples:

- <http://asq.org/learn-about-quality/data-collection-analysis-tools/overview/overview.html>
- <http://asq.org/learn-about-quality/data-collection-analysis-tools/overview/read-more.html>
- <https://www.import.io/post/all-the-best-big-data-tools-and-how-to-use-them/>

**5.4.2. Other sources**

- A Handbook for Online Data Collection: A Guide to Effective Customer Management: <http://www.questionpro.com/images/Online-Research-Handbook.pdf>
- A Handbook of data collection tools: companion to “A guide to measuring advocacy and policy”: [http://orsimpact.com/wp-content/uploads/2013/08/a\\_handbook\\_of\\_data\\_collection\\_tools.pdf](http://orsimpact.com/wp-content/uploads/2013/08/a_handbook_of_data_collection_tools.pdf)



Collecting data need to be done to produce results, this contains the data-clearing and descriptive statistics. To generate evidence analytical statistics are needed. The online tools provide some support for the data analysis.

Data processing is important in business and scientific operations. Business data is processed repeatedly, and usually needs large volumes of output. Scientific data requires numerous computations, and usually needs fast-generating outputs.

### 6.1. Data processing methods and techniques

There are different data processing methods and data processing techniques, among others:

- *Electronic Data Processing*

Is the modern technique to process data. The data is processed through computer; Data and set of instructions are given to the computer as input and the computer automatically processes the data according to the given set of instructions. The computer is also known as electronic data processing machine.

This method of processing data is very fast and accurate. For example, in a computerized education environment results of students are prepared through computer; in banks, accounts of customers are maintained (or processed) through computers etc.

- *Online Processing*

This is a method that utilizes Internet connections and equipment directly attached to a computer. This allows for the data stored in one place and being used at altogether different place. Cloud computing can be considered as a example which uses this type of processing. It is used mainly for information recording and research.

### 6.2. Stages of the data processing cycle

#### a) Collection

It is the first stage of the cycle, and is very crucial, since the quality of data collected will impact heavily on the output. The collection process needs to ensure that the data gathered are both defined and accurate, so that subsequent decisions based on the findings are valid. This stage provides both the baseline from which to measure, and a target on what to improve.

Some types of data collection include census (data collection about everything in a group or statistical population), sample survey (collection method that includes only part of the total population), and administrative by-product (data collection is a byproduct of an organization's day-to-day operations).

#### b) Preparation

It is the manipulation of data into a form suitable for further analysis and processing. Raw data cannot be processed and must be checked for accuracy. Preparation is about constructing a dataset from one or more data sources to be used for further exploration and processing. Analyzing data that has not been carefully screened for problems can produce highly misleading results that are heavily dependent on the quality of data prepared.

#### c) Input

It is the task where verified data is coded or converted into machine readable form so that it can be processed through a computer. Data entry is done through the use of a keyboard, digitizer, scanner, or data entry from an existing source. This time-consuming process requires speed and accuracy. Most data need to follow a formal and strict syntax since a great deal of processing power is required to breakdown the complex data at this stage. Due to the costs, many businesses are resorting to outsource this stage.

#### d) Processing

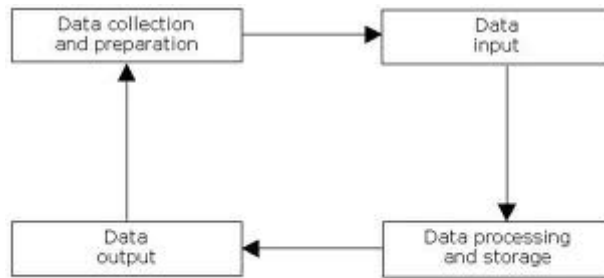
It is when the data is subjected to various means and methods of manipulation, the point where a computer program is being executed, and it contains the program code and its current activity. The process may be made up of multiple threads of execution that simultaneously execute instructions, depending on the operating system. While a computer program is a passive collection of instructions, a process is the actual execution of those instructions. Many software programs are available for processing large volumes of data within very short periods.

#### e) Output and interpretation

It is the stage where processed information is now transmitted to the user. Output is presented to users in various report formats like printed report, audio, video, or on monitor. Output need to be interpreted so that it can provide meaningful information that will guide future decisions of the company.

#### f) Storage

It is the last stage in the data processing cycle, where data, instruction and information are held for future use. The importance of this cycle is that it allows quick access and retrieval of the processed information, allowing it to be passed on to the next stage directly, when needed. Every computer uses storage to hold system and application software.



**Figure 8.** Data Management Best Practices. Information Processing Cycle

### 6.3. Data processing system

A data processing system is a combination of machines and people that for a set of inputs produces a defined set of outputs. The inputs and outputs are interpreted as data, facts, information, depending on the interpreter’s relation to the system.

A data processing system may involve some combination of:

- Conversion converting data to another format.
- Validation – Ensuring that supplied data is “clean, correct and useful.”
- Sorting – “arranging items in some sequence and/or in different sets.”
- Summarization – reducing detail data to its main points.
- Aggregation – combining multiple pieces of data.
- Analysis – the “collection, organization, analysis, interpretation and presentation of data.”.
- Reporting – list detail or summary data or computed information.

## CHAPTER 7. USE AND VISIBILITY OF RESULTS

The methodological guide can end with some information of how to make results visible and to use it for different sakes...

### CONCLUSIONS

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