Lifelong
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STUDYING SCRIPT

EDP-Based Documentation, Quality Assurance and Evaluation in Youth Care Services

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Documentation,
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Youth Care Services

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Foreword

This studying script is the result of a joint development project focusing on "Computer-Based Documentation, Quality Assurance and Evaluation in Youth Care" funded with support of the European educational program "Leonardo da Vinci - Lifelong Learning". On the one hand, the aim of the project is it to address the growing necessity of professional EDP skills in the field of child and youth care in general and on the other hand to meet these new requirements by providing training units to prepare learners, teachers and professionals in Bulgaria, Germany, Luxembourg, Austria and Spain. The focus is on conveying applied basic knowledge on the use of specialized software for care planning, control and evaluation.

In addition to the underlying framework curricula on the training of students and professionals the script at hand is meant for preparation and post processing of trainings in all partner countries.
The focus here is on conveying basic skills to understand information technology in social work in general, as well as the specific introduction to several specialized software programs directly related to the work field, which have proven themselves useful in youth services and are already being used there regularly.

In order to use the studying script internationally, it is designed in such a way that it presents introductory papers on all important topics related to the use of information technology in youth care being equally relevant across all countries in Europe. The script is not supposed to give a detailed account of the relevant study units and set priorities for all locally held courses. It rather serves as a study aid for structuring the content of the competence profiles within the individual units. It is up to the respective countries and institutions to decide on all specifics of the curricula on the basis of their needs.

The selected papers give an overview of the status of scientific research and applied methods in youth services on the following topics: Information technology in youth services, effectiveness of care measures, documentation of care and support processes, use of EDP-based documentation as well as care processes and statistics. Combined with the training units, this script provides an important basis for the professionalization and academic establishment of the profession of educators and pedagogues in Europe.

The authors would like to thank all participating partner institutions and the project contributors who have provided their expertise to realize the project.
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The authors

I. Information Technology and Youth Care

Prof. Dr. Thomas Hermsen

I.1 Introduction: Information technology in social professions

Use of IT in social welfare administration

Nowadays, the use of information technology (IT) is very common in social professions in all European countries. Subject-specific software (such as master data management, service billing) is used in Germany by almost 90 percent of organizations in the social sector, and about 80 percent of social institutions use specialized software (e.g. for case documentation or care control) (Kreidenweis 2013).

Additionally, the application of information and communication technologies has become an important part in most Bachelor's and Master's degree programs at universities of social and health services. In recent years, social computer science has been successfully established as a new discipline in Germany. Also in the field of vocational education and training more and more courses on the application of subject-specific software are offered and requested.

This development is accompanied by a considerable growth of the IT industry in the area of social services. Lately, a separate supplier segment, specialized exclusively in developing software products for social and non-governmental organizations (NGO), has formed and presented its products on specialized trade fairs for social computer science. It is not exaggerated when we speak of a booming market in the IT industry for software products in the field of social work.
Among the most important fields of application of software tools are

Fields of IT application

- case documentation and record keeping,
- care planning and documentation of progress,
- collection and processing of care-relevant information (care process and control),
- reports,
- quality management,
- information and document management,
- client management,
- service documentation and billing,
- accounting,
- service and work schedule,
- controlling,
- human resources management,
- information management,
- case management,
- counseling and treatment as well as
- use of data bases and legal information.

Information technology

Information technology
Information technology is a general term for all electronic data processing related technologies. Included are digitized information and data processing, as well as the hardware and software used for these purposes (cf. http://wirtschaftslexikon.gabler.de/Archiv/78094/it-v8.html 1.05.2013; Ley/Seelmeyer 2011, 643).

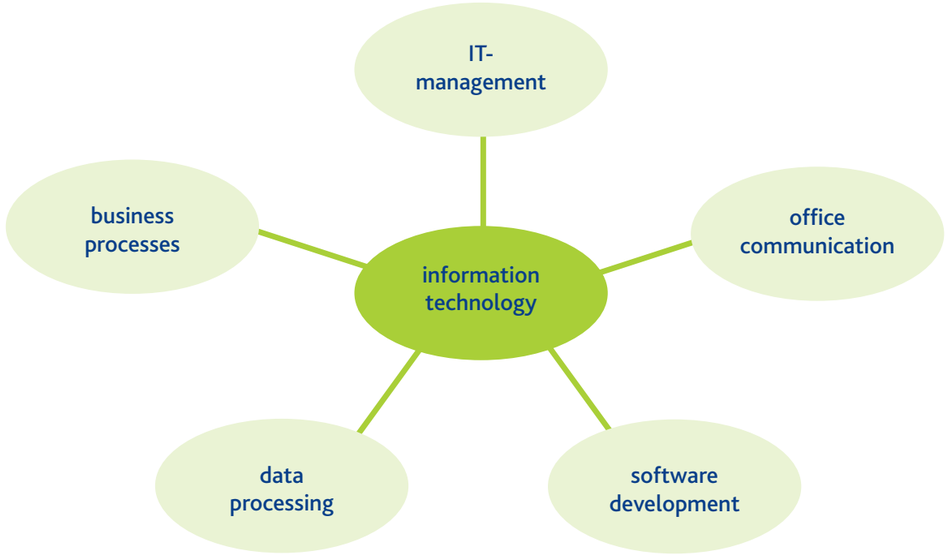

Fig. 1: Information technology.

I.2 Background: The change of the welfare state and new professionalism

Against the backdrop of the enormous IT-boom in the social sector over the last decade, the questions arise which processes have caused this rapid development, and what impact it had and will have on the training and work practice of educators and social pedagogues.

In the following, we will distinguish two significant changes that can be noted in all European countries to a varying degree:

- **Socio-political level**
  Reconstruction and change of the welfare state
- **Profession-specific level**
  New professionalism and quality

Change of the welfare state

Socio-political level: Reconstruction and change of the welfare state

The modern social welfare states in Europe have taken it upon themselves to accomplish

- a high level of social security for all members of society,
- basic social justice and
- balanced ratio of social equality concerning the income and wealth distribution in the population.

In order to realize these objectives, a complex institutional framework has been created to compensate for general life risks such as illness, unemployment and poverty or at least to alleviate them. Tax and contributory benefits, nowadays a core component of the modern welfare state, are granted on the basis of general principles like

- solidarity (members of a society support each other),
- subsidiarity (subordination – help yourself before the state does),
- equivalence (relation between funds and benefits) and
- needs (means testing).

Welfare systems

These welfare systems especially include

- statutory pension insurance,
- statutory and voluntary health insurance,
- statutory and private accident insurance,
- social care insurance,
- unemployment insurance and
- full range of social state benefits.

Despite the remarkable stability of the modern welfare state in Western Europe, certain factors, such as the economy, demography, taxation and socio-political changes, contribute to the fact that the financing of the welfare state in general, and the efficiency of social service providers in particular are being questioned more and more often.

In the last two decades, the self-conception of the welfare state has seen a considerable expansion and, as a consequence, the range of social services has been expanded too. But lately, in response to these developments, an increasing withdrawal of the state in the form of benefit cuts, more personal responsibility, co-payments and a significant shift to other contributors, such as charities and NGOs, can be observed. The focus is on increasing productivity and saving expenses. Various measures are taken to achieve this.

Social state reforms

Worth mentioning here are

- increasing the effectiveness of care,
- optimizing the costs-to-benefits-ratio,
- lump-sum payment of service fees,
- quality improvement and control,
- better networking between giver of payments and service provider,
- strengthening of voluntary work,
- reduction and/or cut of benefits,
- opening the market for social service providers,
- structuring of work processes,
- activating self-help potential,
- more financial participation of users,
- strengthening of users' responsibilities,
- improving preventive service structure and
- reduction of duplicate services.

New professionalism

Profession-specific level: New professionalism and quality

Due to the changes on the socio-political level, social services are faced with new challenges. The increasing shortage of public funds has made it necessary to justify and revise the distribution and use of funds for socio-political measures on the basis of generally accepted criteria and standards. Apart from a general trend to economize and structure social services, a lot of effort was put into the enhanced recording and documentation of the professionalism and quality of the services. All social services have to be legitimized professionally and socio-politically. Processes must be documented, and results and effects of welfare services require internal and external evaluation.

It is essential to improve the costs-benefits-ratio, so that, despite the reduced public funds, a large number of social problems can be addressed, the needy still receive sufficient support and, at the same time, optimal results can be achieved. In addition to strengthening the concept of "self-help", the autonomy and self-determination of the clients – or customers – has to become the focus once again.

Quality and internal evaluation

In order to meet these requirements, the following strategies have to be implemented into the daily work of all educators and pedagogues, in line with the aforementioned reform attempts:

- Introduction of standards and procedures to assess effectiveness,
- development of criteria and procedures to evaluate and determine efficiency,
- implementation of quality standards,
- optimization of procedures and processes within the institutions, between institutions and concerning the life of beneficiaries,
- introduction of business processes such as controlling and accounting,
- improvement of public relations using marketing and
- development of criteria to compare service providers (best practice-model/benchmarking).

The resulting tools and methods can be used to bring about structural changes in social services to achieve transparency about the quality of generally accepted professional standards, and at the same time help reduce costs. This way, tax-funded measures can be justified professionally and appropriately, for instance the usefulness of assistance given in youth welfare.

Despite the justified criticism about the introduction and suitability of mainly economic tools in the field of social services, it has to be noted that these reform attempts have great influence on the development and use of information and communication technology in social work on a national and international scale. The diversity and complexity of new tasks can only be integrated efficiently and comprehensively by an accompanying use of new computer-based procedures.

I.2.1 Interim summary

To summarize at the halfway mark, it can be noted that, apart from the general development of information and communication technologies in the 21st century's computer age, the specific dynamics of IT-development in the social sector are mainly based on the idea that the professional use of information technology contributes to

- increasing the efficiency and quality of social care and
- carrying out complex tasks without wasting resources.

The introduction of IT-products in social services is supposed to have the potential to add value to provided services. Using computer-based procedures, new socio-political and professional challenges can be handled promptly, efficiently and effectively. Whether the work of social institutions can be improved this way and whether the costs-benefits-ratio is reasonable, are empirical questions that can only be answered through practical try-outs in the work field (Kreidenweis 2008, 31).

I.3 Information technology in youth care: Management, quality assurance and evaluation

Social computer science

As mentioned before, a technical term for the development, use and application of information technology in the social sector has been established in Germany: social computer science.

What is social computer science?
Social computer science is the systematic examination of IT-use in social services and in the respective work fields. It explores the various aspects of IT-based information processing in social institutions and is especially concerned with the (systematic) processing of information in their "technical conception, execution and evaluation. In short: Social computer science recognizes the academic responsibility of the factor 'information' in the social services and their environment " (Wendt 2000, 20; translated from German).
In this context the terms "human service information technology" or "social work and information and communication technologies" are also used (Kreidenweis 2013).

The following is not a general introduction to the discussion on social computer science as a new discipline, as it is conducted primarily in Germany, Switzerland and Austria. There are various textbooks that give a good overview over the stage of the discussion (Kreidenweis 2012).
Here the focus is more application-oriented so that the attention is directed towards the application fields of IT in youth welfare. We distinguish three levels of

- IT-based management of social organizations,
- IT-based quality assurance of care planning and process as well as
- IT-based evaluation of the effect of measures taken in social care.

I.3.1 Management – the institution of youth care services

IT in youth care services

Despite the differences in structure and organization of youth welfare in European countries, all public service providers are facing similar challenges. On the basis of the applicable social laws in each country, all social organizations have to deal with social requirements, the beneficiaries and their social problems in all life situations, and coordinate and control everything in collaboration with service providers, such as charities and NGOs. To handle all these tasks, a professional organizing management is necessary which can be supported by the introduction of information technology among other measures.

The suppliers of software are in turn faced with the task to cover the variety of functions and application fields in the social sector with their products, while ensuring that the costs for the products stay as low as possible, and that individual or additional requirements of the customers can be subsequently met and implemented flexibly. Additionally, they have to make sure that the software is user-friendly, time-saving and the handling easy to learn. The goal to improve the quality of welfare services, as well as to optimize efficiency of expenses and results, has to be realized.

For this reason, most software suppliers do not offer complete packages, but flexibly combinable modular components, corresponding to the respective requirements. Similar to a box of building blocks, you can assemble software elements just the way they are needed. The focus is on application systems such as

User systems

- computer-based support in the area of client management for data collection and data management,
- calculation of support and service costs and estimation of costs,
- automated creation of documents and notifications,
- automated management of client histories,
- assistance in care planning,
- management and raising of funds for education support,
- professional and financial controlling as well as
- youth care planning and creation of statistics and evaluations.

The following modular components or application systems are now standard products of suppliers for youth care services and similar institutions:

- General social services,
- care planning processes,
- statistics of child and youth care,
- creation of genograms,
- economic youth services,
- costs estimation and revenue management,
- budgeting and controlling,
- evaluation systems for respective departments,
- endangerment of child care and
- adoption and nursing service.

This overview already shows that the focus is on administration and management of social institutions, and in particular on the documentation and billing of social services. From the perspective of the profession of social work and social pedagogy, especially in the area of care planning and control, there is significant need for supplementation in the development of software products.

I.3.2 Quality assurance – care planning and control

Care planning and control in software

In an initial expertise on the topic "Hilfeplanung im Spiegel ausgewählter Software Produkte" (care planning in selected software products), Helmut Kreidenweis took preliminary inventory on the supply of specialized software on the market, with a focus on care planning and control, in the context of a model program supported by the Ministry of Family Affairs, Senior Citizens, Women and Youth in 2005 (download www.dji.de/bibs/209_4520_Expertise-Software.pdf). Kreidenweis points out, that empirical studies on the use and importance of specialized software in the area of education support do not yet exist. These findings have not changed in recent years. The offers still show a focus on administration and management and fall short of the requirements in the area of care planning and care process control.

In the context of his analysis of the software programs on the market, the author comes to the conclusion, that most of the products have their focus on the collection of care-relevant information and therefore can only meet the professional demand of documentation.
These areas are neglected the most:

- Flexible presentation of support processes,
- preparation of data for the decision making process,
- compilation of support plans and
- case-specific evaluation of achievement of goals (Kreidenweis 2005, 24).

As a consequence, apart from the software products focused on youth care services, there is a small but significant number of software suppliers who concentrate explicitly on the covering of social pedagogical key processes and important tasks in youth services, such as educational support. So the focus is not on the IT-based management of social organizations, but rather on the specific types of support and the range of services, the care process, the documentation of pedagogical methods, the case-specific development of the beneficiaries in the process and the documentation and evaluation of the effects of measures taken.
In the main focus are functions like

- case history (e.g. description of psycho-social stress factors),
- case-specific performance and development diagnostics,
- planning of care and further measures (e.g. documentation of therapeutical and pedagogical methods),
- evaluation of cases and measures (documentation of institution-internal and cross-institutional results) and
- differentiated collection and analysis of respective types of assistance.

I.3.3 Evaluation – effectiveness of social care

People-oriented services

At the center of the debate about effect orientation in social work is the question how to better document and improve the achievement of goals on the basis of scientific standards and empirical procedures. In this context, we talk about the quality of outcomes in social work which, as a person-oriented service, especially relies on the interaction and communication with the beneficiaries to cause effects that ideally lead to the desired results. In the literature, the specific problematic nature of the outcome of (person-oriented) services is being described as "uno actu principle". This principle points out the difference between social services and pure financial aids (e.g. granting of aids in economic youth care). Social work, as a social service, is a two-way process which cannot always be rationally determined or predicted in its progress. In other words, beneficiaries are actively involved in the production of results and therefore part of the care processes and their outcomes. All forms of co-operation, interaction and communication have decisive influence on the effects of social assistance. However, the outcome is difficult to measure, because the results of social care are in many cases hard to assign to specific factors and do not necessarily occur promptly. Apart from that, it should be pointed out, that each case, despite the same problematic issues, follows an individual course. So, which interventions, measures and types of care are eventually used, is for the professionals to decide.

This, however, does not prevent the professional decision making process from being based on a scientifically sound foundation and the choices about practiced interventions, measures and types of care from being supported by scientific evidence about the effectiveness of individual measures. This does not mean that a binding definition of the same is possible or necessary for each case.

In retrospect there are certainly results that point to a corresponding probability of success that can be statistically proven. There are, for example, some indications for a change in resources after the conclusion of stationary or ambulatory care of an adolescent that can be related to specific standardized procedures (binding concepts, standards in case history and diagnostics etc.) and strategies of the institutions and the professionals during the care process. In each individual case goals, changes and achieved goals in different areas, such as social integration, social attractiveness, socio-communicative competences, abilities, skills and physical health, can be documented and evaluated with the help of tables and scaling.

Orientation towards effects

Elsewhere in the script, this topic will be discussed further. Here we are interested in the connection between information technology and effect-oriented work.
As shown above, the flourishing market for information technology in social services is closely linked to the reform processes and control intention of the welfare state, with primary focus on

- reduction of funds and benefits,
- cost reduction and stabilization as well as
- business-oriented reform of person-oriented care services.

As a consequence, there is an increased demand for products on the IT market that align an effect-oriented management system with

- administration tools and
- easily defined factors to measure effects

that are economically useful and can help create competitive advantages. Scientific, methodological and professional insight from research into effects was neglected in software development partly due to insufficient demand, but also because of significantly more elaborate and complex technical (IT-related) challenges.

By now a saturation of the market has occurred, concerning standard software products for administration in social services. Therefore, the primarily commercial suppliers are faced with the challenge of taking into account more scientific, profession-related, theoretical and practical requirement profiles for documentation and evaluation of effects. The further expansion of existing software programs involving modules for documentation of socio-pedagogical key processes leads to advantages in competition for the suppliers and the further development of these products, in reference to international, scientific research on effectiveness.

This process is also supported by the increasing shift of interest of the customers. The previous focus on concepts of result-oriented financing is now supplemented by developments and insights from the Anglo-Saxon area, dealing with the close linking of methodological and practical form of services and the scientific-empirical evidences of effectiveness of measures in individual cases (Otto et al. 2007, 12; Meyer/Kaemper 2013, 110).

I.3.4 Interim summary

So, the focus of present developments of specialized software in the social sector is a combination of

- scientific-empirical evidences for effectiveness of measures,
- related to specific case or client groups and
- the constellation of problems/issues.

In the future, the use of correspondingly altered, specialized software can ensure that proclaimed goals of applied measures and programs can actually be met and obviously ineffective procedures can be avoided (Meyer/Kaemper 2013, 111). The request of representatives of the profession and members of research facilities, which gains more and more in importance, is that the main focus of the now to be used software tools should be the systematic use of research into effectiveness in planning, organization and implementation of social services (Otto et al. 2007, 9).

I.4 Summary

Since the nineties, the development of information technology in social services is shaped decisively by the change of the welfare state, the rising pressure of costs on public budgets, as well as a growing pressure to justify professional social work. Against this background, questions about the effects of interventions, measures and assistance services become a main international interest in scientific research and professional work practice. This debate poses a special challenge for child and youth care, since they are largely financed through public funds and there has been a steady increase of costs over the last few years. Because of a close link between fiscal-political and economic interests of the users of software products in social services, scientific and professional insights on effectiveness in social work has hardly been taken into consideration. As a consequence, the demand for new teaching and training contents on computer-based documentation, quality assurance and evaluation could only be met with considerable delay.

Because of the international distribution of scientific results and applied research on evaluation of effectiveness, coming from the United States, Great Britain and Sweden among others, and an increasingly profession-theoretical debate in Europe, more and more effect-oriented approaches might be established in the daily work, with support from useful specialized software programs (Mullen 2005; Sommerfeld 2005). It is important to continue supporting this development and to prepare future professionals in the respective training institutions for the present and future requirement profiles.

I.5 Exercises

1. Please describe the change of the welfare state and relate these processes to the development in information technology in social services.
2. What are the benefits of using information technology in social services?
3. Please describe the application fields of information technology in social work using specific examples from daily work.
4. How does the use of information technology in social work contribute to the improvement of quality? Illustrate your thoughts using a practical example.
5. What disadvantages may arise, when the effects of socio-pedagogical work are documented and evaluated with the help of information technology? Please use an example to illustrate.

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II. Effect in Youth Care – an Overview

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Lisa Beutin, Sandra Füller, Franziska Heuser, Judith Reichert & Prof. Dr. Thomas Hermsen

Effectiveness in social work

The current debate on the change of youth care focuses increasingly on questions of effectiveness of care measures, relation of costs and benefits (efficiency) and measurability of effects.
Especially in the field of people-oriented services it is very difficult and time-consuming to answer these questions. In the area of youth care, for example, it is complicated to record developments of a child or teenager concerning motivation, attitude to life, self-confidence or social competence using general indicators in such a way that they can be measured and evaluated. Furthermore, it is difficult to establish causal links between implemented care measures and according results. The reason for this is that attitudes and behavior of people are daily influenced by a multitude of events and experiences that are not only the result of care measures.
This already takes us right into the topic of documenting effects in youth care, and we have to ask how 'effect' is actually defined in the field of social work, social pedagogy and educational assistance.

II.1 The term 'effect'

The term effect

The term effect in the field of social work and pedagogy means the changing or influencing of people using certain initiatives and measures. So, an effect does not come about on its own, but is created by a preceding event which then leads to a certain outcome. In youth care these are usually changes in the behavior, experience, thinking, acting and relationships of children and teenagers.
In the focus of the discussion on effects in youth care are the questions

- what the relationship between triggering cause and occurring effects is and
- whether these effects are caused by the care measures or not.

In this context, the relationship of cause and effect can be referred to as causal link, if three requirements are met:

- There has to be a statistic connection between variable x (cause) and variable y (effect).
- There has to be a temporal connection between x and y.
- This connection has to endure when other variables also taking influence on the development of the child/teenager can be eliminated. Moving with the parents to another part of town, for example, can have causal influence on the attitudes and behavior of a teenager. The observed effects, e.g. higher life satisfaction and less aggression, might not be in causal connection with implemented care measures. If this factor is ignored, statements on causal effects might be distorted and also misinterpreted.

II.2 Effectiveness research

Effectiveness research

Effectiveness research in youth care investigates the formation and the connections of effect relations. Since these relations cannot be seen as 'laws of nature' in form of unambiguous if-then-relations in social work, the evaluation of concrete care measures and projects is a suitable research method in effectiveness research.
In the course of evaluating care measures one cannot make causal statements on effects that can be applied to every single case, but it is possible to deduce generalizable probabilities on concrete effect relations. On the basis of reliable statistical procedures in the field of effectiveness research one can make statements on the probability of connections between a certain measure and the observed effect. Gathered data on the case can be very helpful in determining whether an effect can be traced back to certain measures or events. In the literature on the topic these are plausibility assumptions on a measure or care in connection with observed results.

An example: Academic evaluation studies have shown that the cooperation of parents and/or children/teenagers is a central factor in pedagogical work. If it is possible to have parents cooperate during the care it is far more likely to succeed. Whenever there is no cooperation the probability of failure increases. However, it is also possible that a care measure fails even though parents were participating actively and the child/teenager was cooperating.

This clearly shows that effectiveness research can merely provide a statement on the statistical probability of the occurrence of an event following the general trend. The development of every individual case stays unpredictable (Schrödter/Ziegler 2007, 17).

Effect and effectiveness

In effectiveness research a distinction has to be made between effect and effectiveness. Effect merely refers to the relation between cause and result, but does not consider whether the result is the desired one.
The term effectiveness incorporates whether the achieved effect was the one originally aimed at. In this context one can speak of goal achievement in connection with implemented measures.

Take, as an example, aggressive behavior in teenagers: The effect of a care measure can be assessed by looking at how far it influences the teenager's behavior. For example: Forbidding the children from playing computer games when they behave aggressively can influence their behavior insofar that they behave even more aggressively among each other. So the measure clearly had a measurable effect, but it was not the desired one. Forbidding computer games did not have the desired effect of reducing aggression, and therefore was not effective as a measure. Instead, leisure time activities, for example going to an adventure playground, might have helped the children reduce aggression and playfully learn how to behave socially responsible among each other.
This measure would have been effective, since it influenced the behavior in the desired socio-pedagogical sense of reducing aggression.

Which effects are desired is usually decided by all participants by setting specific goals. These goals have to be closely defined in order to be able to recognize positive or negative changes in retrospect.

II.3 Why conduct effectiveness research in social work?

Why effectiveness research?

In the face of increasing pressure of costs and legitimization on service providers in the social services system, organizations in youth care also have to find ways to sufficiently document and evaluate their work in order to create adequate costs-benefits-relations when conducting their care measures. As a part of the resulting growing professionalism of pedagogues and quality assurance in educational assistance it is necessary to find reliable criteria with which to evaluate the effectiveness of measures in youth care. After all, decisions on granting public funds also depend to a large degree on how care measures are justified and what they result in. Thus, the focus is not only on concrete care planning and control of individual cases, but also on research findings on the evaluation of care effectiveness,

concluded from the implementation of care planning and control.

Part of the professionalism in social work is of course to handle public funds responsibly, and to be able to judge and evaluate effectiveness and efficiency (cost-benefit-relation) of care measures objectively and adequately.

Effectiveness research makes an important contribution to this. It creates transparency for investors, professionals and, at the same time, for clients. They have to be able to rely on the fact that their individual needs are met, and that appropriate care measures are used for their support. Only this way the quality of social work can be sustainably assured.

Evidence-based

On the basis of this, the term of evidence-based practice has been established. The term originated in medicine and means that only those measures that have proven to be medically effective can be used. This requirement is understandable, since no one would be interested in having a drug prescribed if neither effects nor undesired side effects were known.

The same applies to social work and pedagogy. Children and teenagers are entitled to being offered only those care measures that have proven effective. That is why the requirement of evidence-based, i.e. research-based assistance has been established in social work as well. In international literature on the topic this is also referred to as "evidence based social work".

In implementing evidence-based social work, social computer science can also be an important supporting instrument. Using computer-based software programs enables us to collect, categorize and analyze larger sets of data when evaluating care measures. Care processes can be documented case-specifically over longer periods of time, evaluated comprehensively and then compared to others. This way research-based knowledge on the effectiveness of individual measures in youth care can be won and made accessible to all institutions.

II.4 Effectiveness research in youth care

II.4.1 Background to the effectiveness discourse in youth care

Background effectiveness research

As already mentioned, social service providers are nowadays faced with different conditions and growing expectations. In the last centuries the social welfare state, in the form we know it today, did not exist. Social work as a profession was still in its infancy and was mostly practiced by laypersons and volunteers in clerical institutions and other charitable organizations.
The activities were financed with private funds and donations to the institutions. It was only in the 19th century that first governmental, social organizations were developed as a part of industrialization and urbanization. Their task was to intervene in social emergencies and undesirable developments. At first, the state dealt with urgent problems such as new forms of mass-unemployment, health care and elderly care. Later, in the face of increasing child labor in cities, governmental actions in child and youth care gained importance.

Through the reform of the youth care law (SGB VIII) in 1991, for the first time, there was the legal right to educational assistance in Germany. Youth care services were made responsible for distribution and provision of social care, while general institutions for educational assistance and newly created ambulatory social care stations had to provide the respective (Struzyna 2007, 7). The modern social welfare state now mostly covers the costs of youth care, and explicitly for educational assistance.

In the developing social welfare state the economic pressure on service providers in youth care, in connection with rising costs, is increasing steadily. For many decades the level of expenditure (input) in the social sector was assumed to be the crucial factor for state involvement. Over the last two decades the realization dawned that a high level of expenditure does not necessarily mean a well performing system. So, the service capacity (output) was temporarily taken as a measure of performance. Nowadays, the main focus is on the category of effectiveness (outcome) and intended results.

Effects and pedagogical interventions

In traditional control systems of the welfare state pedagogical intervention was regarded as handling complex, social relations in a specific subject-subject-relationship between professional and recipient of care. Until the early ninties the prevailing opinion was that the most effective and efficient form of control of such varied tasks was to support the professionals' capability to solve problems. An academically well-founded training was one way to achieve this goal. Thus, the professionals had profound capabilities to reflect and explain, and they had the power to decide which services to grant, and, according to professional criteria, how to treat their clients (Meyer/Kaemper 2013, 109).

The legally binding youth care planning, implemented by the German social code at the beginning of the ninties, as well as further modernization initiatives in the mid-ninties can now be regarded as essential developmental steps of the idea of effect-oriented control of youth care. It puts the focus of socio-pedagogical work on the relationship between professionalism, effectiveness and economic efficiency.

II.4.2 Effects in youth care

The task of youth care is to foster young persons' development potential and help develop their capabilities using pedagogical, supporting, family-complementary measures. In this context, social disparities and disadvantages also have to be targeted and reduced, and acute individual problems have to be relieved at an early stage. The forms of care include counseling, individual care, socio-pedagogical family support, foster care for children outsides their families and support in family and juvenile courts.

Measurement of effects

The effects of pedagogical work cannot be observed directly. Therefore, it is necessary to rely on clearly measurable indicators that point towards the effects in question and that can be deduced plausibly. Since socio-pedagogical professionals are not the only ones influencing a child or teenager, effects of pedagogical intervention always have to be viewed in relation to effects caused by other influences. Here it is important to note: The more interventions are influenced by or depended on other factors the more unreliable are the intended effects of pedagogical interventions.

Besides influences people have on other people, there are a number of other factors that can cause effects almost completely unrelated to the intervention. For example, time can be a significant factor, especially meaning the point in time when an intervention was implemented and long-term

effects. Because, firstly, the same kind of intervention might not have the same effects at all times, and, secondly, many positive and negative effects manifest themselves only later. Therefore, in order to determine effects, the time of observation is important, and so it has to be carefully chosen and plausibly explained when evaluating any effects (Wolf 2007, 20 ff).

Also, if assessing conditions at two (or more) different points in time and noticing changes, this can indicate certain effects, and possibly show effect processes that often are non-linear, but erratic, delayed and may sometimes only occur temporarily (Schrödter/Ziegler 2007, 17).

Additionally, it can be assumed that the (psycho-social) state of children and teenagers in the dynamic process of growing up changes constantly and often rather dramatically over time without any connection to interventions.

Effects of socio-pedagogical interventions can be achieved on various level; they can relate to psychological processes, to central, dyadic relations, smaller configurations, networks, social space and social consequences (Wolf 2007, 21).

Therefore, it is important to define on what level effects should be achieved and evaluated. To only consider intended effects is not advisable, since unintended effects can be so adverse that they might cause the question of how meaningful the intended effects actually are. That is why in effectiveness research the relation between intended and unintended, adverse effects is taken as a measure of rationality for an intervention program.

There are two options to determine effectiveness and effects in research: investigating a large number of cases or individual case studies. When investigating large sets of data one can look for strong correlations and conclude a connection. Using additional theories a statistical connection can be interpreted as a plausible cause-effect-correlation.

When looking at individual case studies, conducted using qualitative methodology, the material is interpreted methodologically in order to develop and test theses on correlations. Afterwards, comprehensive statements can be developed. The connection between indicator and the effect it (supposedly) indicates has to be revealed for it to be verifiable (Wolf 2007, 20 ff).

Numerous studies have proven that social work is effective – pedagogical interventions are at least as helpful as the work of psychologists and psychiatrists. But not all measures reach the same level of effectiveness: (Cognitive-) behavioral measures aiming at changes in behavior and the restructuring of dysfunctional thought processes as well as family-therapeutical measures showed the best results (Schrödter/Ziegler 2007, 7).

II.4.3 General conditions of effect-relevant factors

Effects and context

Apart from indicators of effects that can be directly linked to interventions there are numerous other relevant factors that can also influence intended effects. Among these are general, institution and organization related conditions, such as the distribution of power in the organization, role allocation of professions and organizational culture. Furthermore, interactional processes in the organization have influence on how services are provided.

To illustrate, here another example from the field of medical care. It is a fact that, for example, the interior design of rooms including the color scheme and natural daylight influence recovery. Moreover, the kind of social interaction is a crucial factor in recuperation. This is particularly obvious on pediatric stations in hospitals.

Some of the most important general factors influencing effects are:

Professional attitude

The focus here is the professionals' attitude towards their work. In effectiveness research it is important to know how professionals identify with their work, what kind of professional ethics shapes their everyday actions and what their general professional self-conception looks like. Helpful in answering these questions could be statements like:

"I do not read professional journals, because they do not help me in my practical work."
(Schrödter/Ziegler 2007, 25)

Professional autonomy

A crucial condition for success is granting extensive autonomy of action in the profession. A broad field of responsibilities and tasks will give the staff members the freedom to involve themselves. A structural division of work steps on several persons should be avoided. In medical care it is also often not advisable to divide labor, since then one hand does not know what the other one is up to. Statements as the following can give guidance:

"Observing the development of the family I can determine very well whether the work I am doing is good or bad."
(Schrödter/Ziegler 2007, 24)

Organizational culture and distribution of power

In organizations different participants influence, drawing on their own opinions and attitudes, what is regarded as good, relevant and important in their work. Therefore, it seems to be necessary to practice an organizational culture where everyone is involved in working out the perception of quality and effectiveness. The basic understanding of these concepts significantly affects the way standardized measures are realized. In effectiveness research it is therefore useful to investigate conditions such as conflicts in communication or strategies to distribute power and influence. It can be helpful to ask questions like:

"How much influence do the following groups have on the development of quality criteria and models, and how much should they have? Institution management, team leader, professionals, families."
(Schrödter/Ziegler 2007, 25)

Involvement in the organization

In the research it was found true that there is a positive relation between the performance of staff and their involvement in their organization.

"If staff members have the opportunity to help decide which measures in pedagogical work are deemed positive and result-oriented, this can promote a good work performance."
(Primus 2012)

For example:

"I feel that my values are very similar to the ones in this institution."
(Schrödter/Ziegler 2007, 25)

Working relationship
Many studies have shown that the working relationship between client and professional is a central factor for a successful care measure. The agreement on general goals, connection and relationship between professional and recipient influence the level of cooperation. This, in turn, is relevant for the success of educational assistance. For example:

"Family helpers have shown us what happens during a consultation and what can be achieved."
(Primus 2012; Schrödter/Ziegler 2007, 26)

Client satisfaction
If the work should be effect-oriented, feedback and opinions of clients have to be considered and taken seriously. If the client realizes that their attitudes or opinions are relevant, they feel valued and included. This promotes a balanced and positive relationship. See for example:

"The service is provided at the time it was promised."
(Schrödter/Ziegler 2007, 26)

Motivation for change
In empirical research this was proven to be an important effect-relevant factor in psycho-social interventions. The level of motivation of the client is directly relevant to the care process. They have to show a certain level of willingness to change their own situation. This is of major importance, especially in social work where clients often do not participate in measures voluntarily. The ideal would be:

"I take part in this measure, because I want to change something about my life."
(Schrödter/Ziegler 2007, 25)

Empowerment
This term describes the strengthening of autonomy and self-responsibility of the client. Research into this factor is relatively new. By investigating it professionals can get an impression of how clients see their roles and responsibilities and to what extent they can use local social services to satisfy their needs. For example:

"I get along well with the social service system."
(Schrödter/Ziegler 2007, 27)

Outcome-oriented control
This means a result-oriented control which is also a crucial effect-relevant factor. Service evaluation, agreement and the use of service data influence the care process. What role do service data play, how are they used and communicated and how does the form of data collection influence the behavior and development of the clients, the staff and the interpretation of results? Therefore, regular collection of and reflection on effectiveness data and their influence is imperative in effectiveness research. For example:

"Do you currently conduct systematical monitoring and controlling of all services provided by your part of the institution, and what data are documented and analyzed in what way?"
(Schrödter/Ziegler 2007, 24)

II.4.4 What are concrete indicators in youth care?

Effect indicators in youth care

We now know what effect is, how youth care is affected and what conditions or factors can influence the effect of a measure. The question now is how to determine whether a measure, already conducted or currently implemented, was or is successful and effective, or not. In order to prove relevant effects and successes of a measure observable and measurable indicators are needed. But what are indicators exactly?

In general, effect indicators are criteria that describe the level of goal achievement of a process. They are a kind of guideline with which to make substantiated statements on the effects of pedagogical actions. This way it is possible to determine if a measure caused the desired results. "If it is, for example, found that three out of four teenagers in penitentiaries previously had contact with youth care services, this can be seen as a significant connection of contact to youth care services and serving a sentence but it is not indicated to make the assumption that anyone in contact with youth care services will end up in prison." (Schrödter/Ziegler 2007, 17)

Therefore, indicators have to be carefully chosen and a large number of them have to be considered. This is the only way to suitably document and describe the complex life situation of a teenager.

By now, numerous studies on effectiveness research in youth care are available. And despite the diversity of the field a few general statements on effectiveness of care measures can be made:

- The more thoroughly and consistently measures are implemented the more effective they are.
- Long-term interventions show greater effectiveness than short-term interventions.
- Successful interventions are oriented on the needs of the client and designed proportionally to them (Schrödter/Ziegler 2007, 15).
- Measures can only be effective if capabilities, opportunities, willingness for cooperation, interests and wishes of the client are considered.
- The probability of a high level of effectiveness increases when recipients involved in the care process can contribute their views and participate.
- The better the relationship between client and professional the higher the effectiveness.

II.5 Summary

Effectiveness research has established itself in the work practice of youth care. Focusing on the analysis of effect correlations has helped to implement youth care and especially educational assistance more appropriately and efficiently.

Using research-based evaluation processes new methodical and theoretical perspectives on the practical work with children and teenagers could be opened up. Similar to medical care, professionals can now deduce what factors contribute to achieving certain goals and what factors are obstructive or even counterproductive.

The research has helped extend the knowledge on effectiveness of pedagogical processes and this way increase the probability of successful care measures. Furthermore, the knowledge on effect-relevant factors can be used to influence and justify socio-political decisions and goals. Also, creating transparency on the effectiveness in social service systems will promote the trust of recipients and the public.

From the point of view of professionals, effectiveness research greatly contributes to professionalization. Pedagogues gain more competence in diagnosis and the formulation of goals, and at the same time a practice-oriented, responsible and reflective attitude in social work is promoted.

II.6 Exercises

1. What does the term effect mean in youth care?
2. What effect-relevant factors are there in youth care and what do they deal with in detail?
3. Explain the strengths and weaknesses of effectiveness research in youth care.

Further reading

Meyer, Friedrich-Wilhelm; Kaemper, Nadja [Meyer/Kaemper 2013], Die Relevanz der Diskussion um Wirkungsorientierung in der Kinder- und Jugendhilfe, in: Niedersächsisches Ministerium für Soziales, Frauen, Familie, Gesundheit und Integration (Ed.): Erste Fortschreibung des Basisberichts mit den Schwerpunkten Sozialstruktur und Hilfen zur Erziehung und fachliche Vertiefung der Hilfen zur Erziehung, Hannover, pp. 108-113

Primus, Andrea [Primus 2012], Wirkungsorientierte Jugendhilfe. Wie kann man pädagogische Arbeit effektiver und effizienter gestalten?, Hamburg

Schrödter, Mark; Ziegler, Holger [Schrödter/ Ziegler 2007], Was wirkt in der Kinder- und Jugendhilfe? Internationaler Überblick und Entwurf eines Indikatorensystems von Verwirklichungschancen, in: ISA Planung und Entwicklung GmbH (Ed.), Schriftenreihe "Wirkungsorientierte Jugendhilfe", part 2 , Münster, pp. 5-64

Struzyna, Karl-Heinz [Struzyna 2007], Wirkungsorientierte Jugendhilfe – Hintergründe, Intentionen und Ziele des Bundesmodellprogramms, in: ISA Planung und Entwicklung GmbH (Ed.), Schriftenreihe "Wirkungsorientierte Jugendhilfe", Band 1, Münster, pp. 5-13.

Wolf, Klaus [Wolf 2007], Wirkungsorientierung in den Hilfen zur Erziehung, in: ISA Planung und Entwicklung GmbH (Ed.), Schriftenreihe "Wirkungsorientierte Jugendhilfe", part 1, Münster, pp. 19-24

III. Effectiveness of Youth Care Measures

Prof. Dr. Michael Macsenaere

The present paper pursues four different objectives to

- give an overview of effectiveness research in educational assistance,
- outline the main results of this study on effects and their various contributory factors,
- show ways in which effect-based data can be used for quality development and advancement in educational assistance and
- show how effects can be documented in everyday pedagogical work and how they can be used as a basis for empirical quality development.

III.1 Effectiveness in educational assistance

Effectiveness research in educational assistance

In order to deal with the first research question we will consider an analysis of more than 200 youth care studies from all over the world. For the present paper about 100 studies have been selected. These are mostly effect-oriented studies dealing with educational assistance in Germany. The analysis of effect-oriented studies shows that…

… only very few pre-1970 studies on residential care are available. This has changed over the past few decades: More than 90% of youth care studies were conducted in the last 35 years. Research priorities change and evolve influencing specific questions, kinds of care and applied research methodology.

… the analyzed studies deal with residential care for the most part. Other types of care, such as (partly) institutional or ambulatory care and counseling, are clearly underrepresented.

… particularly residential care, compared to neighboring fields (e.g. integration assistance), has been well-researched and is now widely understood. However, compared to other fields in the humanities and social sciences, e.g. medical science and psychology, there is still great development potential in youth care research: This concerns the still mostly undifferentiated research questions as well as the not sufficiently used repertoire of methods in empirical social research in its entire spectrum.

… some studies on effects solely assess the intended effects – mostly documented through achievement levels – while ignoring any (unintended) side effects. Although in many cases it is just these side effects that can determine success or failure of measures.

… most effect-oriented evaluations mainly deal with the determination of visible and objectively verifiable effects of care measures, in other words the achievement of objectives specified in the care plan. A number of evaluations also talk about impact and outcome of care. Impact refers to the subjective effects the beneficiaries are aware of, namely for example how satisfied they are with the care process and achieved changes. Here, needs and values of the beneficiary are taken into account. Outcome is the indirect effect on society and/or the environment, namely a decrease in youth unemployment or other economic effects related to care measures. Our analysis shows that most studies dealing with the determination of effect and/or impact do not work from an institutional and professional research perspective but rather look at individual case studies and therefore work target-group specific. Future effect-oriented evaluations should pay additional attention to all three dimensions of effects (effects, impact and outcome). This would provide us with useful, complementary perspectives from experts, beneficiaries and society.

Development effectiveness research educational assistance

Looking at all analyzed studies on youth care in chronological order clearly shows that research on residential care hardly existed up to the seventies. Scattered over several decades only very few studies exist.

Starting in the mid-seventies, the "labeling approach" and specific forms of organization in institutional care were researched.

While up till then empirical studies were in short supply, the situation changed in the mid-eighties. A number of studies on different aspects of residential care were conducted, for example on work with parents, on the location of residential care in the field of social and health care and on personnel. Different forms of residential care were also researched empirically, e.g. external residential groups, residential groups in families, closed residential care and childcare outside the family.

The pedagogical personnel in residential care centers was considered by researchers: So some authors investigate the problems of older educators in residential care, studied personnel turnover and the strain on educators in everyday work. Some studies put focus on care beneficiaries and their often ambivalent experiences with residential care. First attempts in effectiveness research can also be found in the mid-eighties.

Research in the nineties was characterized by two methodological features:
On the one hand, the share of empirical studies with a quantitative approach increased – in some cases even including more ambitious, quasi-experimental research designs.
On the other hand, researchers put more focus on the question what effects residential care has. Bürger analyzed legal behavior and educational or professional qualification of people who spent time in residential care using a pre-post design, Hebborn-Brass, using the same design, investigated the changes achieved through residential care and the conditions responsible.

A research group around Thiersch looked at "Leistungen und Grenzen der Heimerziehung (JuLe)" (Achievements and limits of residential care). It was the first effect study evaluating three forms of care (§§ 32, 34 und 41 SGB VIII) supra-regionally.

JES study

The following multicenter study on effects in youth care (Jugendhilfe-Effekte-Studie, JES) was the most elaborate effect study so far. Instruments to measure the quality of structure, process and most of all results were developed and then tested theoretically – a novelty in youth care research. These instruments were then used in a quasi-experimental research design in order to compare and contrast five different forms of care (§§ 28, 30, 31, 32 und 34 SGB VIII) in five states.

Using the JES-instruments a number of effect-oriented studies could be conducted to this day. The first effect studies in the nineties dealt with more global research questions, such as whether and to what degree youth care is successful. For this purpose empirically based results had to be consulted as well, because even five years after implementing the SGB VIII (German social code) the question of effectiveness in youth care was usually regarded with some aversion.

Since the studies mentioned above could confirm the mostly positive effects of educational assistance (depending on the study and form of care between 60% and 75% - in some cases up to 90%), the question whether and to what degree youth care takes effect has become less important.

Current research focus

Current research now moves away from global problems like this and towards more differentiated research questions: Thus, for example, researchers investigate which effects are achieved with which clients in which form of care and in which pedagogical setting, and what the responsible contributing

or inhibitory factors are.
Recent studies focus on effect-relevant factors, special programs, indication and structural framework conditions. In this context they adapt methods that have not been previously employed in the field of educational assistance, such as, for example, cost-benefit-analyses, regional comparisons, control group studies, catamneses and quality development on the basis of empirical data. This way, a number of uses can be gained for qualification of educational assistance. We will take a closer look at a few selected aspects.

III.2 Effects and contributory factors in educational assistance

Effectiveness and efficiency in educational assistance

Despite often very difficult starting situations, educational assistance shows significant results: Between 60% and 75% of measures lead to positive developments and have strong effects that also endure after conclusion of measures. In certain cases, success rates of up to 90% could be observed.

In addition to effectiveness ratings, data on efficiency is now also available: First results from cost-benefit-analyses in residential care confirm significant beneficial effects in the areas of education, employment, health and delinquency. These tangible benefits clearly exceed all expenses, leading to a positive cost-benefit ratio. Thus, residential care shows a cost-benefit ratio of 1:3 and individual, pedagogical care one of 1:6. This means that every Euro spent will lead to gains 3 or 6 times the cost.

Effective factors in educational assistance

In the last decade, a number of factors contributing to effectiveness and efficiency in educational assistance could be identified. The following is a list of some contributing factors:

Starting situation

Chances of success are higher the earlier a need of assistance can be responded to. With increasing age and more pronounced and stronger symptoms the probability of positive results diminishes.

Socio-pedagogical diagnostics

Regarding the work in government offices for youth care, systematic socio-pedagogical diagnostics are useful. Examples for this are the Bavarian diagnostics tables. In a control group study these diagnostics tables proved to be a highly reliable and valid method extensively describing the risks and resources clients and their environment deal with. While the tested EDP-based version leads to a work increase of about an hour, the tables nevertheless provide a valuable means of structuring care processes, especially for less experienced professionals in general social services. Using the diagnostics tables the quality of assignments could be improved. This, in turn, led to overall more expensive but also more effective assistance. Entrants are able, using the tables, to reach the same level of effectiveness as their more experienced colleagues. Additionally, fewer subsequent measures are necessary, so that, in the long run, the economic cost-benefit ratio will improve.

Indication

One of the main tasks of government offices for youth care is the so called quality of assignments, the 'art' of choosing suitable or indicated assistance measures. Effect studies (EST!, JES, EVAS) show that professionals in general social services are able to choose the most suitable measures in at least 50% of cases. On the other hand, in about 30% of cases not suitable measures are chosen (see fig. 2).

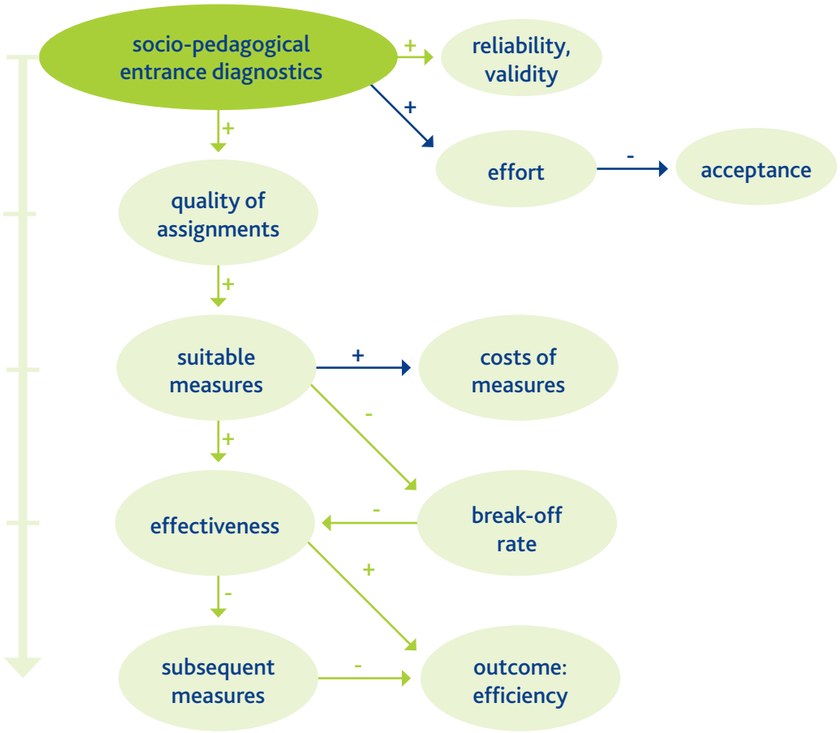

Fig. 1: Effect structure of socio-pedagogical diagnostic tables (source IKJ).

This area requires further quality development over the next few years. The acquired knowledge has to be applied to the practical work of youth care. A promising way to do this seems to be the use of the already mentioned diagnostics tables which clearly contribute to better indication.

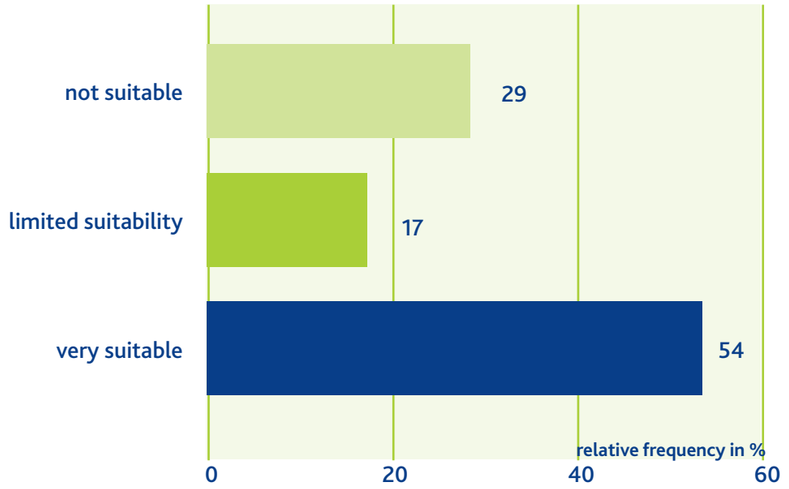

Fig. 2: Current state of indication in government offices for youth care (source IKJ).

Avoiding succession of unsuitable measures

The more subsequent measures have to be taken the higher is the resistance towards change in young people, and effectiveness is low. Therefore, it is important to avoid the succession of too many unsuitable assistance measures, which unfortunately is not uncommon, by providing adequate measures early on.

Orientation towards resources

A stronger orientation towards the beneficiary's resources in government offices for youth care and the institutions improves effectiveness as well as sustainability of achieved effects. Measures focusing at least one objective on supporting a person's resources can achieve stronger effects compared to those focusing only on shortcomings. Therefore it is pleasing to note that, in the last ten years, the share of resource-oriented care plan objectives has doubled.

Cooperation

A central contributing factor in pedagogical work is the cooperation of parents and/or young people. When active cooperation can be achieved the chances of success are very good, while if it fails to appear failure is very likely. A necessary but not sufficient prerequisite is the participation of parents and young people. Additionally, this has to be supplemented by the constant effort to create possibilities to help themselves.

Employee qualification

The lower the standard the higher is the probability of drastic failure.

Duration of care

For more intensive care measures is important: The longer the duration of care the better are the effects. This principle applies to most kinds of care with duration up to about three years. Demands for a general limitation of care duration contradict these results. In individual cases it can be useful to specifically evaluate effects achieved in the first year and use them for further care planning and control.

Work with parents

As a part of educational assistance, the work with parents is – despite very diverse concepts – an essential, contributing factor. Care concepts including work with parents are significantly more successful. It is possible to reduce the risk of a break-off and to improve the cooperation of beneficiaries – including the parents – considerably.

In addition to the factors described above, the following are also connected to the result quality: quality of relationships, caregiver, personality and qualification of professionals, previous life experiences, structure and process quality of the institution, social learning and education, trauma pedagogy, vocational guidance and aftercare.

Future studies will help expand and improve this list of contributory factors. If these factors are consistently followed and implemented in government offices for youth care, a significant qualification of youth care can be expected, in turn leading to better target-oriented effects. This does however require a systematic exchange between research and practical work.

III.3 Use of effect-based data

Effect-based data can and should be used for quality development and also for further development of educational assistance. Three strategies out of many different options are introduced here: 1. dealing with questionable methods, 2. insights through comparison and 3. use of findings for optimization on all levels.

Dealing with questionable methods

Empirically based knowledge can and should be used to identify and question unsuitable methods. From a scientific point of view, this is highly questionable, for example...

- **... general limitation of care duration:**
  This is highly problematic, because – as has been empirically proven – the most significant effects in residential care can only be achieved after at least two years and then considerably improved upon in the third. Demanding a flat limitation of care duration before care measures have even started (i.e. a maximum of 18 months) is not reasonable according to research results. Rather, an approach oriented on individual cases is advisable in order to ensure the right duration of care during the process. This not only leads to better effects of pedagogical work, it also pays out in economic respect.

- **... avoiding expensive but indicated measures in favor of cheaper but less suitable ones:**
  Exploiting the principle "ambulatory before residential" to reduce costs is completly scientifically unfounded. Furthermore it is legally and ethically very questionable. This also often leads to a trial and error method where different care measures are "tested". This practice more often results in an increase and aggravation of symptoms that can then only be reduced with intensive measures if at all. In order to act effectively and economically in the long term, priority has to be given to the suitability of care measures. Only when measures are equally suitable costs should be considered.

- **... reducing (personnel) costs by employing unqualified personnel:**
  In the last years, this has mainly been a problem in ambulatory care. Effect studies show that lower deviation from a minimal standard, e.g. a completed training in the field, leads to notably reduced effectiveness and a significant increase in failures. As a consequence, more intensive and expensive successive measures have to be taken. So, originally meant as a way to reduce costs, it often leads to an increase in costs.

- **... delay or refusal of care:**
  The refusal of care usually leads to increase and aggravation of symptoms. Later care measures then have to deal with a more critical situation and older clients – both have proven to be negative factors.

Insights through comparison

When considering all effect studies, educational assistance shows, as described above, an on average good effectiveness and efficiency. However, results vary to a great degree. National data show "good practice" and even "best practice models" on the one hand, but also some "bad and worst practice models". This variation has an optimizing potential that should not be underestimated. A prerequisite for this, however, is a common, nationwide evaluation program. In the late nineties, the need for comparable data was one of the main reasons for many institutions to join forces on the project

"evaluation of educational assistance (EVAS)". Twelve years after starting the evaluation, the nationwide sample includes over 30,000 cases (see fig. 3) encompassing the whole range of educational care measures.

clients
over 30,000 cases
16 states
approx. 35,000,000 sets of data

institutions
spanning different sponsors
250 institutions

European
- Germany
- Austria
- Luxembourg
- The Netherlands

14 types of assistance

Fig. 3: Regional distribution of EVAS-samples (source IKJ).

This way, institutions can compare and contrast their structures, processes and assistance results with similar institutions. The so gained knowledge is being used in care planning of individual cases in many institutions. It is also used to critically evaluate pedagogical work in practice and to change and adjust concepts. In many cases institutions have reported that only this national comparison has made them realize what their status is, what their shortcomings and their strong points are. Some institutions even told about real surprises: A large institution in Hessen, for example, realized how difficult the clients they were dealing with really were. Another one found out by comparing results that their effectiveness in intensive care groups was far above average, while their regular group 'only' achieved average results. These realizations became part of quality development in both institutions.

Use of findings

Use of findings for optimization on all levels

The knowledge gained through systematic evaluation can be used as the foundation for decision-making on all relevant levels in youth care:

- **Individual cases**
  Starting situation, process and effects of each measure can be mapped with regard to addressees. This kind of instrument to control single measures was not available before and can now be integrated in the process of care planning. Recent EVAS results show for example that only half a year after the onset of measures a reliable prediction about later success or failure can be made (see below). This knowledge can and has to be considered in care planning after six months.

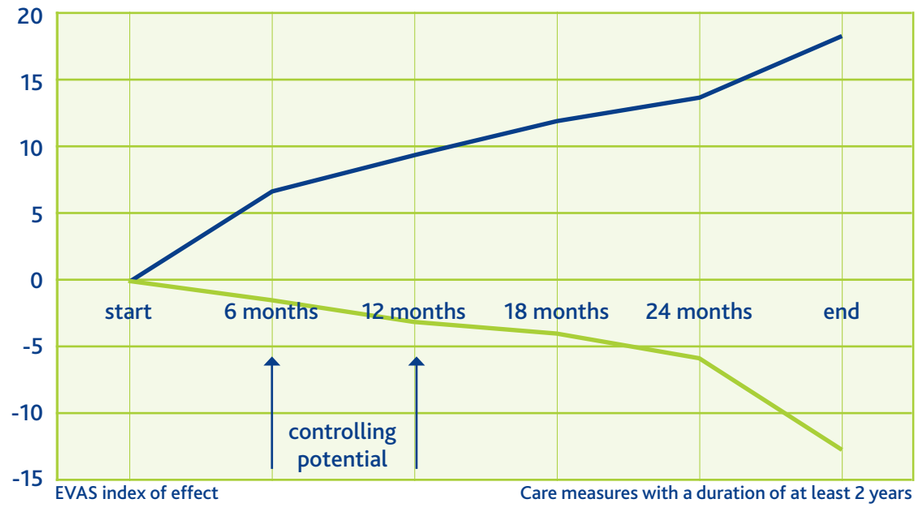

Fig. 4: Effect level and duration of stay of positive and negative youth care progression (source IKJ).

- **Group level**
  The data on individual cases can be put into a variety of (statistical) groups. This makes differentiated statements possible concerning types of assistance, regions, institution groups, characteristics of clients (gender, nationality, age ...) and others. Additionally, institution groups can be compared in internal benchmarking.

- **Institutional level**
  Institutions or the government offices for youth care can get empirical findings on clients, types of assistance, duration of care, costs, successes, efficiency etc. Furthermore, it is possible to compare results with those of other institutions in order to get an analysis of strengths and weaknesses.

- **National level and political level**
  Because of regional differences in youth care, successful and unsuccessful method models can be identified and used for optimization purposes. For example, the nationwide EVAS sample showed that day groups in Bavaria differ significantly from day groups elsewhere: They work with different clients, different structures and processes and most importantly different results. Disparities should therefore be regarded as an essential learning opportunity. And this opportunity increases if we consider youth care in a European context.

Legitimization and optimization

The results of such an effect-oriented evaluation can be used for legitimization purposes as well as internally for optimization and quality development processes. This can over time lead to more suitable and more effective assistance which will benefit disadvantaged young people and their families. Despite this advantage, effectiveness research is sometimes being accused of "technocratic objectification" of people. In this context, I want to repeat a previously given argument: In the future, effectiveness research should, whenever possible, not only consider obvious and objectively verifiable effects of assistance, but also, and on the same level, take the subjective impact on beneficiaries and the indirect effects on society (outcome) into account. Such a broad understanding of effects based on all relevant points of view, including the one of the beneficiaries, could last but no least also counteract the accusation of objectification.

III.4 Documentation of effects in everyday pedagogical work

Documentation of effects

How can effects in everyday pedagogical work be recorded and documented? Here, it makes sense to analyze various (inter)national methods. In summary, ten practicable recommendations can be made for effect-oriented evaluation:

Individual cases

Effects have to be measured in each individual case. This might be time-consuming but it is necessary to get hard data. If the same (or at least compatible) instruments are used for documentation, then all data can be aggregated and thus made usable for all higher levels (group, institution, region etc.).

Longitudinal design

In order to depict effects of an intervention and thus changes in an evaluation, a longitudinal design is an essential requirement. A pre-post design where data is compiled twice, at the beginning and at the end of care measures, is the bare minimum when determining effects. When the results of an evaluation have to be used in care control, data has to be compiled more often. This also leads to more reliability. In (partly) residential care, data can for example be compiled twice a year if this is compatible with the care plan.

Prospective data collection

Despite the higher effort, prospective, accompanying data collection is necessary, because this provides more complete and reliable data compared to retrospective collection.

Result quality

Effectiveness research has to put focus on result quality. It is important to not only consider changes in shortcomings but also in the person's and his/her environment's resources. Lately, the capability approach by Nussbaum und Sen (1993) increasingly gains in importance when it comes to measuring effects. Here, all basic capabilities of a person which not only depend on their own skills but also on social conditions.

Contributory/inhibitory factors

Despite the focus on result quality, result-relevant, structural and procedural factors have to be considered as well.

Side effects

Every care measure does not only achieve the intended effects, but also not intended side effects which have a significant influence on success or failure of the intervention. In order to validly measure effects, all side effects have to be documented as well.

Dimensions of effects

Effectiveness research distinguishes – depending on the approach – three dimensions of effects:

- *Effect*:
  Directly visible and objectively verifiable intervention effect, determined by professionals or experts; common in medical care, psychology and social pedagogy (English-speaking area).
- *Impact*:
  Subjective effect on beneficiaries (young person or family); common in social pedagogy (German-speaking area).
- *Outcome*:
  Indirect effects on society, e.g. economic effects and decrease in criminality; common in economy and sociology.

Although documentation of all three dimensions would be preferable, most studies are limited to one or two dimensions, because of the amount of work.

National

Studies spanning institutions and regions make comparisons possible (analyses of strengths and weaknesses) and provide learning opportunities.

Test quality

Instruments used to measure effects should meet international standards. Main quality criteria are objectivity (independence of results from user), reliability (accuracy of measurement) and validity (is what is measured that what is supposed to be measured or something else).

Effect studies

Effect studies can use various research designs and be based on various statements. The internationally recognized hierarchy of reliability of effect studies is as follows:

- Systematic meta-analyses of randomized control studies,
- randomized control studies (experimental studies),
- quasi-experimental studies,
- case, control and cohort studies,
- pre-experimental group studies,
- surveys and
- qualitative studies.

Future effectiveness study should therefore increasingly focus on experimental studies and meta-analyses.
Finally, the evaluation standards developed by the German Evaluation Society "DeGEval – Gesellschaft für Evaluation" (2008) are worth considering: Evaluations should be useful, feasible, fair and accurate (a detailed description of these standards can be found at www.degeval.de).

III.5 Summary

Effectiveness research in educational assistance has made great strides over the last two decades. Empirical research was able to find evidence for the significant, positive effects of the majority of care measures. This general tendency was confirmed in more detailed studies dealing with effectiveness in specific client groups and of specific care types.
These results are complemented by studies focusing, apart from effectiveness, also on efficiency.

Cost-benefit-analyses confirm that residential care has positive effects in the sectors education, employment, health and delinquency.
Among the most important factors positively influencing care measures are early commencement of care, use of professional diagnostic methods when determining a suitable type of care, a more pronounced resource orientation in regard to the clients, close cooperation with parents and adolescents, assuring suitable qualification of staff, duration of care, quality of relationship, personality and qualification of professionals and consideration of previous life experiences.
Additionally, these results provide important indicators for optimization of business procedures and for quality improvement in youth care institutions.

III.6 Exercises

1. Name effect-relevant factors that can influence the process of care measures positively according to recent research findings.
2. Of what use are the findings in effectiveness research for the process of quality development in educational assistance? Please illustrate using a practical example.
3. On what levels can effects be registered and documented in everyday pedagogical work? Explain these levels using a practical example.

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IV. Documentation in Educational Assistance Processes

Mechthild Denzer & Dr. Richard Hammer

Quality assurance and quality development

IV.1 Assignment and value of documentation/ evaluation in educational assistance processes

The German social laws concerning child and youth care (SGB VIII) function as the legal framework for child and youth care in the hands of public institutions. They have to ensure that, in order to realize all tasks, the necessary conditions are created and continuous quality development occurs, as required by § 79a. This also and especially includes youth care planning (§ 80) which instructs public institutions

"to assess the medium-term needs of young people and their guardians, taking into account their wishes, requirements and interests, and to plan all necessary measures in time and to a sufficient extent, so that all needs can be fulfilled." (§ 80, paragraph 1, translation from German)

This can only be achieved through a continuing process of quality assurance and quality development within child and youth care institutions. When distinguishing three different levels of quality, namely structure, process and outcome quality (EVAS 2005, 4-3), it becomes clear that, when it comes to the "main business" of pedagogues,

- socio-pedagogical diagnostics focusing on the collection of data on the life of the person concerned including their risks and capabilities as well as
- documentation and evaluation

form the basis for the entire care process.

Orientation towards resources and participation

Based on the observation of the child/teenager in their respective life situations (family, school, living group), and in combination with information about their biography an analysis is conducted. Also taken into account here is the knowledge about possible development processes and disorders of children and teenagers. While considering all resources available to the respective person, in their parents' home and in their social environment, and all risk factors the child/teenagers might be confronted with, goals are formulated – in cooperation with the person concerned – to enable the child/teenager, with the help of concrete measures, to participate in everyday social life. The evaluation of these processes will then either confirm the achievement of set goals or lead to reconsideration of objectives and measures.

IV.2 The care process

Care process

The care process can be presented as follows:

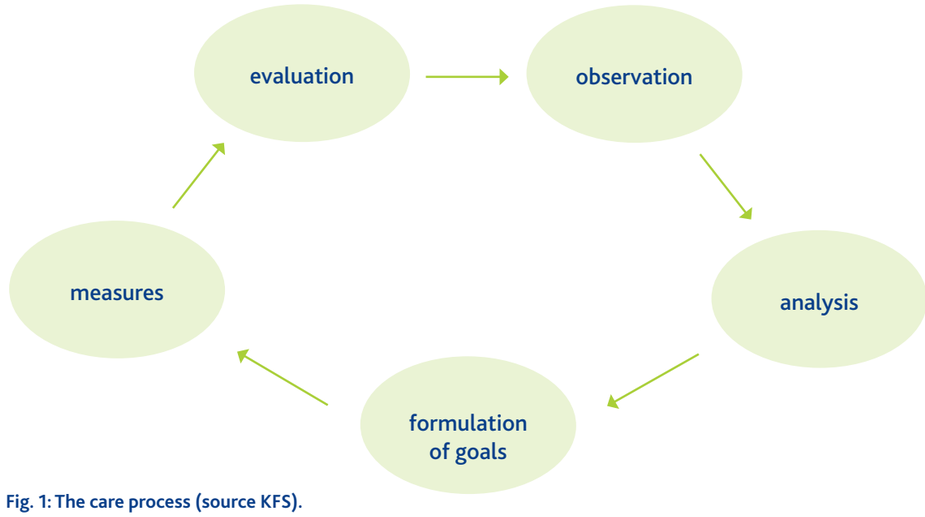

Fig. 1: The care process (source KFS).

The care process will be explained in the following chapters.

IV.2.1 Observation

Observation and diagnostics

The observation of other people, consideration of their statements, postures, gestures and their overall behavior is a very common, everyday method to help people to interact with each other. It is a "naïve" way to judge the people around you, to adjust to them and plan your own behavior accordingly.
For observation within the field of "professional diagnostics" the following tasks can be derived:

- Observation helps to form a picture of the person observed that is as objective as possible (diagnosis, results) when all received information is analyzed.
- The intention is it to use the resulting picture to decide on measures (educational measures, support plan, therapy plan) that will help to positively influence and change the picture of the person concerned.

Structured observation tries to avoid randomness as far as possible, so that observed and recorded behavior can be quantifiable and comparable. In order to achieve this, the observer follows an elaborate observation plan specifying who or what is being observed and when, how and how often the person is being observed (event sampling, time sampling). If only a certain part of behavior is to be observed (e.g. speech, motor skills, behavior while playing), structured observation sheets can be used that allow comparison with a later observation of the same child or other children. It also has to be carefully considered whether the observer should interact with the child during observation or not and whether observation should be carried out openly or concealed.

Errors of observation

When documenting and evaluating the following aspects have to be recognized as possible errors of observation:

- Reality is a construction of the observer that means that realities are perceived differently by different observers: overhasty evaluation.
- Discrepancies are often avoided in order to adapt apparently deviating impressions to the overall picture (halo effect).
- Certain observations are expected. So they will receive more attention (anticipation effect).
- Observations are always made in context. Problem: abstractions are made too early, detachment from context.
- Distortion of social situation by observers: they are a part of the system.
- Interpretation of observations is strongly influenced by: previous experiences, information, own life story, specific environment and cultural differences. Observation is therefore pre-structured.
- Perception also depends to a large extent on the current condition and state of mind: wishes, desires (identification with acting person), emotional connection to the observed person, expectations, motivation, physical condition, illness.
- Unfamiliarity with group culture: non-verbal communication varies across different cultures and social classes.
- Disregard of hints: the obvious is not always the essential.
- Records can be inaccurate (not to be "drawn in" by special events; tendency to leave out extremely positive or negative evaluations).
- Disregard of "personal dignity" of the observed: subject-object relationship.
- Observation should not be "moralizing".

Observation is always based on interaction – it's all about relationships!

Observation does not perceive isolated things or events but correlations and relationships. These can be different types of relationships:

Types of relationships

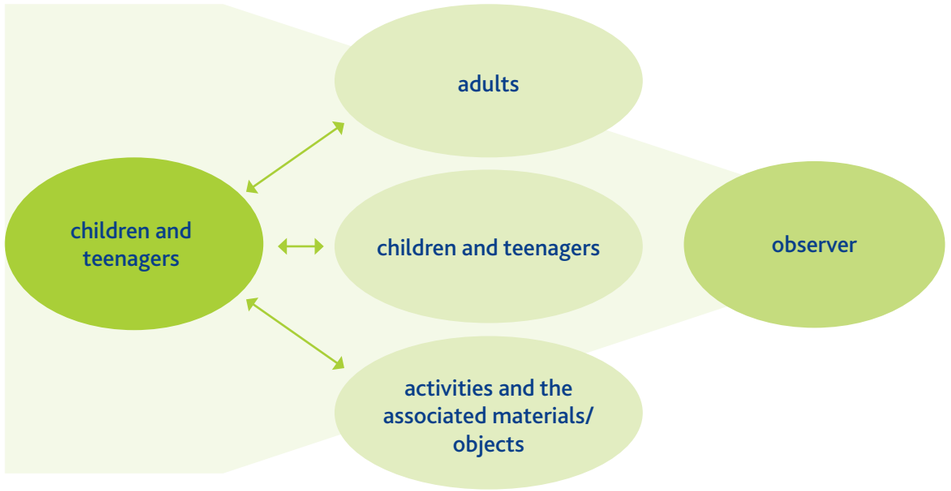

Fig. 2: Types of relationships (own source).

IV.2.2 Analysis and forming hypotheses

Analysis life history

On basis of own observations and the collected information on the child's/teenager's life history an analysis of the current life situation is conducted. Theories on development stages and processes and possible disorders of children and teenagers have to form the professional base for the analyzing process. The expectations of all parties concerned have to be included here as well.

Educators might therefore ask the following questions:

- What are the requirements for the child's education plan?
- What are his or her capabilities and skills?
- Which of his/her strengths can be used here?
- What spatial and temporal conditions are there?
- What are own expectations and the expectations of everyone else concerned with regard to educational measures?

Based on this, hypotheses are formulated regarding the child's/teenager's possible development objectives. This way further information on the education process can be provided and at the same time new options of reasoning and acting can be opened for everyone concerned.

Forming hypothesis

When forming hypotheses, not the correctness but rather the usefulness in regard to solving problems is important. The usefulness can be measured by:

- **Organizing function**
  Hypotheses are supposed to separate important from unimportant information and help educators to order their thoughts and ideas (as a first step in their mind).
- **Suggestive function**
  Fresh hypotheses are meant to present first the educator and then the people seeking assistance with new perspectives and also open new acting possibilities.

Contents of hypotheses

The contents of hypotheses are related to

- subjective views of the persons concerned (How do they evaluate their situation? What are their plans for the future?),
- visible and hidden rules and patterns of interaction in their environment,
- what value/importance the "symptoms" have for themselves and their environment and
- possible future outlooks for themselves and their environment.

IV.2.3 Formulation of goals

Formulation of goals

On the basis of analysis and hypotheses, goals are formulated for the educational process all further steps are based on. General guidance for this process is provided by § 1 of SGBVIII (German social code), the social law concerning the right to child and youth care:

"(1) Every young person has the right to the promotion of his/her development and to education to become a self-sufficient and socially competent person. […]
(3) To help exercise the right stated in paragraph 1, youth care should
1. support young people in their individual and social development and contribute to reducing or avoiding disadvantages,
2. support and advise parents and legal guardians in educational matters,
3. protect children and young adults from danger to their well-being,
4. contribute to maintaining or creating positive life conditions for young people and their families, as well as to a child- and family-friendly environment." (translation from German)

This creates the obligation that goals are carefully set and formulated. Very useful in this regard is referring to the so called SMART criteria. SMART guidelines are:

SMART formula

S pecific: Goals are set with practical orientation. They can be substantiated by asking WH-questions: who, where, when, with whom, how, what.
M easurable: A change in behavior has to be observable. Who can recognize it first and how? In what context should it be observed?
A cceptable/action-oriented: Can the goal be accepted (agreed on) by all participants, meaning first of all the team members but also the persons seeking assistance (participation!). The goals should be phrased in a positive way, not "You must not lie" but rather "You should tell the truth".
R ealistic: Can the goal be achieved with help of available resources and in the set frame of time?
T ime-bound: A date has to be set to evaluate the achievement of goals.

IV.2.4 Formulation of concrete and feasible measures

When specifying the contents and methodology, the measures that are formulated should be feasible in the context of assistance and in all likelihood lead to the achievement of set goals. The responsible educator should ask himself/herself the following questions:

Formulation of measures

- What contents determine these measures? (Are to be defined together with the children/teenagers!)
- What kind of information and knowledge is needed in order to competently carry out this measure?
- What methods are suitable to achieve the set goal?
- What kind of media and materials should be used?
- What does the room need to look like to implement the measure?
- What should the organizational process look like – specifically in regard to time structure?
- With which children/teenagers will be worked?
- Do other people be need to be included as support?

IV.2.5 Methods of evaluation

Methods of evaluation

When checking whether goals in the assistance process have been achieved or not, several methods of evaluation suggest themselves. All participants can be asked for their own evaluation and opinion. In this case a guideline for the interview or an observation form can be helpful. The use of tests on specific areas of personality development contributes to a large extent to "objectification". Here all materials from the analyzing phase can be used.

The responsible educator should look back on the individual planning steps and the implementation of concrete measures, and ask the following questions:

- Was the initial assessment (analysis) in regard to space, time, materials, social relationships and chosen contents correct?
- Were the goals set appropriate for the current life situation?
- What results could be achieved – in regard to formulated goals?
- Did the course of the educational process correspond to the initial plan?
- What differences were there?
- What reasons for these differences can be seen?
- What conclusions can be drawn for future pedagogical work in care processes?
- What should be done differently next time?

IV.3 Summary

The SGB VIII (German Social Code Part VIII) dictates that, when planning and implementing measures in youth care, wishes, needs and interests of young people and their guardians/parents have to be taken into account. Therefore, quality assurance and quality development is of special importance in child and youth care institutions when it comes to fulfilling this task. Professional diagnostics and competent data compilation on the life situation of recipients is fundamental.
Using competent observation methodology, information on the child/the adolescent and their life situation is gathered and documented. Also taken into account are expectations of all participants.
Afterwards, goals and measures are formulated which are supposed to guide further actions.
After conclusion of care measures, goal achievement in the care process is evaluated on the basis of widely recognized procedures.

IV.4 Exercises

1. What is the role of observation during the care process?
2. Which observation errors can occur? Describe these errors in detail using a practical example.
3. Explain the SMART criteria.

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V. The Use of EDP-Based Documentation and its Application in Care Planning

Karl-Heinz Adams & Timo Herrmann

V.1 The Use of EDP-based documentation

V.1.1 EDP-based documentation as an area of tension

EDP-based documentation

Even though EDP-based documentation is already being widely used in youth care, it is still a disputed topic. While the supporters see this kind of data collection as an asset to their daily work, for others it is still a waste of time that keeps them from their 'actual' work with clients.

To the extent, however, that quality and service agreements are established in social work and lump payments are replaced by service-based payments, it becomes more and more necessary to legitimize all actions accordingly with the help of a transparent documentation system.

In this context two main problems related to the particular nature of social work show:

- The "client behavior" (Kreidenweis 2012, 96, translation from German) in social work depends on the dynamic development of life and action plans. This means that an abundance of different (and often unpredictable) approaches and a large degree of complexity in action processes has to be integrated into this kind of software.
- In general this kind of software always underlies the "dilemma of standardization" (Kreidenweis 2012, 96, translation from German): Standardization in the compilation of data and processes helps the necessary generalization process. But only a system that offers flexible options can deal with a lot of individual cases.

V.1.2 Advantages of EDP-based documentation

It can be noted that the development of modern documentation systems has flourished over the last few years. They are capable of a high degree of flexibility and connect pedagogical and care related aspects with economic aspects.
The advantages of this EDP-based documentation are obvious.

V.1.2.1 Legible, higher level of completeness and correctness

Entries in EDP-based documentation systems are more legible, because users are not forced to fill in small boxes in their individual handwriting. Instead, all entries can be easily matched to each user by assigning individual initials.

Text modules or lists of services make precise descriptions easier and are clearer; text complements help show different connections (Zangerl 2011, pp 10). Digital systems also facilitate regular and continuous documentation.

V.1.2.2 Time saving

Time saving

In a central documentation system, on a PC or a laptop, information can be found much more easily, because they are all stored in one place. When working in teams this also means better access to a common data base. This makes the teams' work much more efficient.

Work processes

Data that has been entered and stored once can be used multiple times and does not have to be entered repeatedly, thus saving time. Work processes such as creation of lists, bills and shift plans take less time, because digital documentation systems make it possible to use automatized forms and routines.

Statistics

The creation of statistics also requires minimal effort. Is it, for example necessary, to consider management information that is functionally or economically relevant (e.g. utilization rates, costs, revenues, residence time) one soon realizes that they are readily available, because the corresponding data already exists and does not have to be generated.

V.1.2.3 Complexity and effectiveness

Nowadays, the granting of funds for social projects is usually closely tied to careful documentation. Digital systems make an understandable and professionally founded justification for the use of financial resources possible.
It all starts with well-documented care planning, and also includes the documentation of the project plan and finally all EDP-based evaluation routines (controlling). All in all, this will lead to the optimization of care planning processes and makes effectiveness assessment possible.

Transparency and comparability

The transparency and comparability of documented work created this way also promotes the acceptance of social work in society. However, Müller et al. (2009, 4) describe in an example concerning Munich how easily this transparency can put pressure on authorities to explain their actions.

Digitally stored data helps to further develop local concepts on one hand, and one the other helps to create global theories by making concepts and processes comparable beyond the local context. For this purpose process chains that formulate and document the diverse work with individual client types have been stored digitally beyond institution boundaries for some time now – similarly to "clinical pathways" (see Zangerl 2011, 11) in the medical domain. Standardized reporting to initiators or sponsors is facilitated just as much as the control of services offered in social and youth care planning.

V.1.2.4 Data privacy

Data privacy

The digital storage of personal data always requires a clarification of access rights. These rights have to be formulated unambiguously for employees and teams, and offer – with the appropriate binding agreement – refined data privacy.

V.1.3 Acceptance among employees

Social acceptance

First of all, it should be noted that in the field of social work there can be no useful programming without the software producer having at least a basic understanding of social work. Therefore a continuous process of consultation between software users and producers is required.

Technology has to be adapted to individual situational requirements, not only concerning the institution which uses such digital storage systems, but also in terms of professional and ethical aspects (awareness of the complexity of social work). In this context, Zangerl speaks of "requirements for the interface between man and machine." (2011, 13, translation from German)

Has a digital information system been acquired, the acceptance among employees has to be secured. This is done first of all by making sure that the system is running stably. Then, all employees have to be trained and familiarized with the system (user training). This is often done by the producer/developer of the software.

A technical manual alone is not enough for this. A manual everyone has access to containing the software contents, such as definitions of professional terms is just as essential (Diers 2004, 9f). Because terminology in the field of social work is by far not as consistent as that terms could be used uniformly.

User forums where experiences with the program can be collected have proven to be useful in many cases, because this information can help improve and further develop the systems.

Furthermore, digital documentation systems have to offer a certain comfort, for example including data analysis options and standard evaluation routines. They should be usable without having to accompany every step with scientific explanations.

V.1.4 Interim summary

The complexity of social work and social actions has already been mentioned above. This is where the use of digital documentation systems reaches a limit in social work, because this complexity can never be fully captured in a computer program. But we can agree with Kreidenweis (2004, 5) who says:

"Today's common poor data situation in social work could be resolved by relatively basic but regular evaluation of hard data, such as the average length of stay, drop-out rates or accumulated costs of measures."
(translated from German)

Workable solutions in this area will find their place somewhere in the middle.

V.2 The use of EDP-based documentation in care planning

EDP has limits

Care planning according to § 36 SGB VII (German Social Code Part VII) is the central process and the fundamental control instrument in educational assistance. The ideal goal here is it to define and further develop a structure for all persons and institutions cooperating in a care process. Accordingly, it is essential to develop structures in institutions that are closely connected to the care planning. Software programs can play an important role in supporting the pedagogical staff when preparing case and care planning discussions.

V.2.1 Different EDP-based solutions in connection with care planning

EDP and educational assistance process

Basically, there are two different IT-solutions that are currently used to document educational assistance, and therefore are also relevant to care planning.
First, there are software programs that can be installed on every PC in the institutions and are usually used in form of a client/server solution. Second, there are web-based data bases that can be used with internet access and a standard browser (e.g. Firefox, Chrome, Internet Explorer etc).

V.2.1.1 Software solutions in institutions and services

Specific software solutions will only be discussed marginally in this study script. The first programs of this kind were not created to be used in the field of educational assistance. Rather they were more or less successful adaptions of programs used in the care sector, in hospital administration and handicapped aid. It was only later that programs specifically meant for the use in educational assistance were created. Accordingly, these were able to deal with all characteristics of this specific field in social work.

Client administration

Almost all of these programs focus on client administration and offer ample space to enter, document and manage master data and basic information in this respect. By saving the data on a server they can be accessed from every PC in the network, making it possible to sight current information, and to update and save them. Of course, any goals set in a client's care plan can also be documented with the software.

In practice these goals are usually put into hierarchical order. Despite numerous different qualifications and initiatives, the goals formulated in the care plan are often kept rather general, and therefore have to be more closely specified and differentiated in following steps (education planning).

This logical process is also reflected in most youth care management systems where care planning goals can be divided into subgroups of goals and even operationalizations. Based on this, measures to achieve set goals are planned. During the course of the assistance all applied interventions and

measures can now also be documented and assigned to the respective goal.

A firm rights management furthermore makes it possible to give every staff member access to only those information he/she is entitled to see (i.e. of clients in his/her group) while persons on the management level have unrestricted access to all data and can use all program functions.

Aside from the administrative functions the software also replaces hand-written diaries, completion certificates, organizers etc. Every event (positive or negative) can be documented and categorized. Since a customized software administration is possible, institutions can keep their familiar terminology, and establish their specific categories or define their own sets of values. This should make it easier for the pedagogical staff to get used to IT-based documentation and at the same time increases acceptance.

General administration

Apart from documentation of client information the applications also offer modules for staff management, accounting, duty schedules, cash management etc. However, these will not be considered here, since they are not relevant to the use of IT-based processes in care planning.

Evaluation

When it is necessary to update the care plan and the respective concluding evaluation of measures, the software can offer support. Using the evaluation function it can be outlined which pedagogical measures and interventions have been used how often in order to achieve a certain goal.

Additionally, the filter function can be used to search and evaluate within a certain category. For example, all entries for a client made in group documentation or daily documentation in the category "aggression" can be easily found and are available to be used in reports. Exporting data to common word-processing and spreadsheet programs is also a standard function.

And furthermore, institutions can create and use their own forms filling them out using the administrative program. All software providers offer individual consultation and adjustments (free of charge or for an additional charge) in this respect.

Resumptive, common youth care software programs offer the following important support in regard to care planning:

- Defined goals and according measures can be reviewed at a glance.
- Search and filter functions for all free-text fields make it possible to easily find relevant information and are therefore useful when writing reports for governement offices for youth care.

V.2.1.2 Web-based solutions (case study: evaluation program EVAS)

Aside from the described software solutions which require installing the program on the computers in the institution, it is possible to use a web-based data base. Here, there are also several methods with varying degrees of distribution. Without doubt, the longest in use is EVAS (evaluation of educational assistance). It has been used in practice since 1999. First as a paper version, since 2001 with computer support and a completly revised version will be available in 2014. As an example for this and similar programs, the use of EVAS in care and education planning will be described below.

EVAS – design and analysis

The basis for all processes that can be initiated via EVAS are prospective care process documentations of individual cases. The design for these is rather simple (refer to fig. 1).

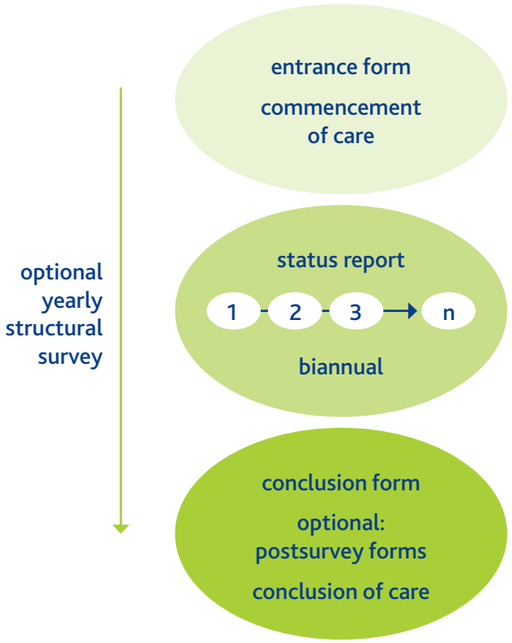

Fig. 1: EVAS-survey design (source IKJ).

When starting the care, socio-demographic information along with data concerning the life situation of the client, previous care and assistance measures, resources and problems and care/education plan goals are recorded.

During the care, the progress will be documented twice a year focusing on the present situation concerning resources and problems. Additionally, important information on the process (interventions, cooperation) merge into the survey. Moreover, the achievement of planned goals is documented and new goals for the next period are defined.

Finally, when care measures are concluded, additional information on how the care was concluded and the situation after conclusion are recorded. This is done from the perspectives of all involved professionals. Optionally, it is possible to include the perspectives of the client, the guardians and social workers.

These case-specific information are complemented by the yearly documentation of structural conditions the pedagogical work takes place in.
The collected information are analyzed for the participants on different levels (see figure 2).

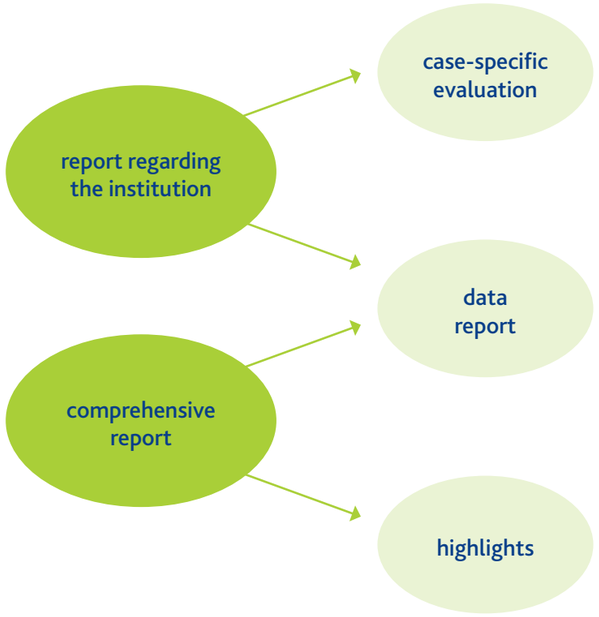

Fig. 2: Overview of different kinds of EVAS-reports (source IKJ).

Evaluation of individual cases

- **Evaluation of individual cases**
  The development of the client during six consecutive evaluation periods can be adequately observed using tables and descriptive diagrams. This form of evaluation can be retrieved by every staff member in form of a PDF-document after entering new information in the data base.

Data reports:

- **Data reports**
  They are created once a year (by collecting information from all cases) and allow to regard the situation in the whole institution. Additionally, every EVAS-user has the possibility to compare their own results with the corresponding figures from the German total sample, and draw conclusion on either the further need for improvement or signs of positive developments that can be used for outward argumentation.

Standard reports are the following (provided different kinds of care are offered):

- All participating institutions and services are provided with a "comprehensive report spanning all care types" in which all data are considered.
- All participants receive an "institution report spanning all care types" containing the overall results for their institution (apart from those institutions that only provide one kind of care).
- In order to be able to compare the institutions clients with the total sample according to different care types, "care-specific reports" (EVAS offers 13 various modules for this purpose), are created.
- Analogically, participants providing different care types receive a "care-specific institution report" (e.g. for §§ 34, 32 and 31 SGB VIII).

- Every report is thematically divided into three parts:
  Part A: situation at care commencement,
  Part B: process description of the first two years of care,
  Part C: effects of work and situation at care conclusion.

- **EVAS highlights**
  These are released in irregular intervals and deal with the latest youth care (politically) related relevant questions and seek to provide answers and points for discussion on the basis of EVAS-data.

Figure 3 provides an overview of possibilities for comparisons.

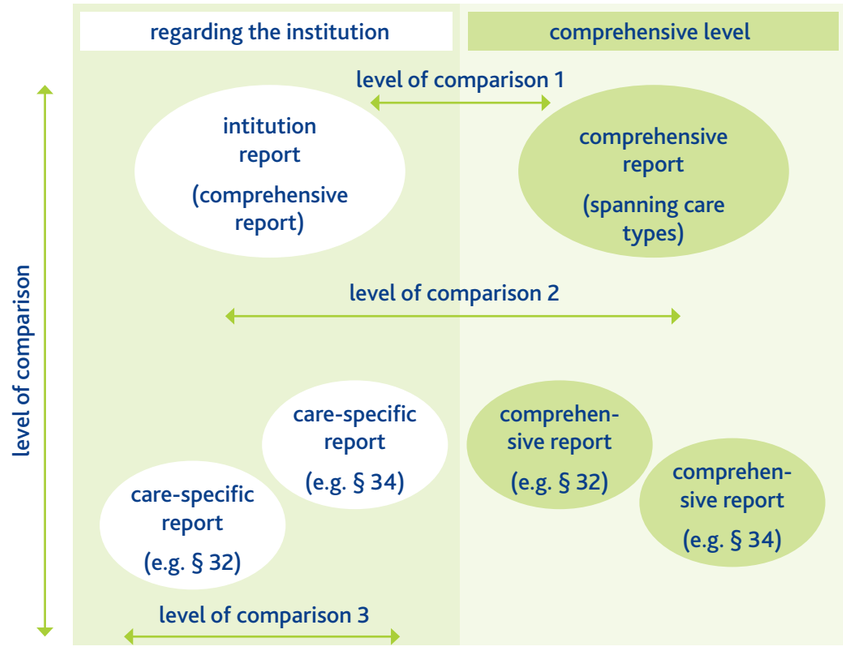

Fig. 3: Possible comparisons for the interpretation of EVAS reports (source IKJ).

Using online processes in the context of care planning

How well a documentation system like EVAS is accepted crucially depends on how well it can be integrated into the already existing work steps and processes. Therefore, it is necessary to connect EVAS directly to the care and education planning in the institution. The language and categories, provided by a uniform evaluation system, can present a good structural aid. They help create a consistent understanding of terminology in various parts of the institution.

EVAS and care planning

Of course, the purpose is not to replace individual reports and descriptions of developments by a few categories and their evaluation but rather to support and complement them.

In detail, EVAS can be used in the following steps of care planning (also compare fig. 4):

Care commencement...

EVAS-references

Start of care	
Anamnesis/ diagnosis/ current situation	Recording in entrance form: ▪ previous stay ▪ previous cares ▪ reasons for stay etc. ▪ area of care ▪ delinquency ▪ resources ▪ problem situations
Definition of desired condition	Goals child/parents + prognosis
Care/ education/ intervention planning	
... 6 months later	
Review education/ intervention planning	Executed interventions child/ parents (retrospective), number of plan discussions
Current status/ check of goal achievement/ analysis/ evaluation	Recording in 1st status report: ▪ area of care ▪ delinquency ▪ resources ▪ problem situations ▪ cooperation child/parents ▪ degree of goal achievement of previous goals
Definition of desired condition	Goals child/parents + prognosis
Care/ education/ intervention planning	
... 6 months later (etc.)	
Review education/ intervention planning	Executed interventions child/ parents (retrospective), number of plan discussions
Current status/ check of goal achievement/ analysis/ evaluation	Recording particular status report: ▪ area of care ▪ delinquency ▪ resources ▪ problem situations ▪ cooperation child/parents ▪ degree of goal achievement of previous goals
Definition of desired condition	Goals child/parents + prognosis
Care/ education/ intervention planning	
... conclusion of care	
Review education/ intervention planning	Executed interventions child/ parents (retrospective), number of plan discussions
Current status/ check of goal achievement/ analysis/ evaluation	▪ area of care ▪ delinquency ▪ resources ▪ problem situations ▪ cooperation child/parents ▪ degree of goal achievement of previous goals ▪ kind of conclusion (+ possibly reasons for termination)
Future perspectives	▪ living situation ▪ school/vocational situation ▪ general future perspectives ▪ if applicable subsequent care and goals

Reporting system – discussions (care)management – discussions child/parents – team meeting – reflection – care giver conference – discussions doctor/therapist – daily documentation – case discussion – care planning discussions - etc.

Fig. 4: Connections working systems/care planning/EVAS (source IKJ).

Entrance interview

Entrance interview

The quality of the initial diagnosis is the foundation for every case-specific care planning. At this point, the care givers still largely depend on information provided by, for example, the local government offices for youth care, parents and people in the child's environment. They often use forms and checklists for documentation, as, for example, forms for entrance and basic personal information and the entrance interview form.

Depending on the state of these papers, using EVAS entrance form items can either be a useful complementation or help compress data.

Furthermore, the entrance form itself can be used as (mental) guideline during the interview. A major advantage is the inter-connection, i.e. on the one hand, the form structures the interview and assures that all care plan-relevant information are discussed, and on the other hand, all EVAS-relevant information can be gathered from the participants.

In the course of integrating EVAS many users have regarded the local government offices for youth care with more attention. They have consequently created a form for youth care services that asks EVAS-relevant information along with others.

Preparation and follow up care planning

Preparation and follow up of care planning discussion

In connection with care planning, preparation and follow up of the care plan discussions EVAS can be integrated in many places.

Example preliminary talk with the child/teenager: It is common practice to have a preparatory talk with the child/teenager on the topic of self-perception and perception by others. Here, questions as the following are discussed: Where do you see your strong points, where do you have weaknesses? Recall the goals set in the last discussion: How far have we come in your opinion? How did you contribute to that? What are your goals for the next six months? How can you contribute to achieving them?

Professionals have found a concrete point of connection with EVAS in the item "resources/protective factors of the child/teenager" and created a checklist for self-perception: The ten scales in the item are transformed, using the information in the glossary, into for the child understandable statements. These statements can then be judged 1 to 6 (very good – insufficient), according to the school grade system.

Others fill out the EVAS form before the talk (except for care plan goals), and then discuss it with the child/teenager.

Reporting system

Reporting system

When creating reports for government offices for youth care, EVAS items can be used as guidelines for the report (e.g. development reports) or as handouts. Missing qualitative elements can be added as usual to the respective points.

Regardless of the order in which these steps are made (create report, fill in EVAS form), they complement each other or rather one can be used to prepare the other. In this sense, EVAS does not create more work but integrates smoothly into the reporting system. Additionally, reports and handouts can be complemented with selected contents from case-specific EVAS evaluations.

Daily documentation

Daily documentation

Information gathered during everyday pedagogical work are usually recorded in daily records. EVAS users have taken to rethink and standardize their former system in order to be able to record useful EVAS-information along with qualitative aspects (such as group atmosphere, mood of children etc.).

These information are mostly elements that can be standardized and described briefly, for example interventions, school grades, absence etc.. Apart from the improvement of information management, the time between biannual EVAS evaluations can be bridged without problem. In addition, more attention can be paid to EVAS-terminology in the daily documentation, to standardize it and practice a professional language use.

Team conferences & case discussion

Team conferences & case discussion

In the interest of data quality and case work central EVAS-items (resources/protective factors and general evaluation, need for intervention [disorders/diagnosis] and severity) should be discussed during the team conferences. So different working systems compile and analyze all information, while the further case-specific actions are planned.

The necessity of integrating EVAS into the teamwork is also connected to the criteria applying to a general diagnostic procedure and consequently apply to the (self-)evaluation with EVAS as well.

Firstly, the integration of several perspectives should lead to more objective evaluations. The team colleagues have the task to adjust for overly subjective and emotional perspectives. This way a common scale for comparisons is created as well, which is crucial for a balanced evaluation extending beyond one specific case.

Thereby, the whole team stands for reliability, precision and the stability of their evaluation results, guaranteeing the quality of data usage for EVAS-reports. At the same time, conferring about the EVAS-items supports the well-coordinated, pedagogical actions of all team members, which is just as important for concrete case work.

During the meeting the whole team is advised to maintain a suitable balance between effort and information density. Closely connected to this is the reasonable choice of topics as well as a disciplined discussion in general.

The following aspects should be regarded in order to be able to use EVAS effectively during a case discussion:

Efficiency of EVAS

- The form should be prepared by the person who knows the child/teenager in question best. This also involves choosing a number of questions that should be discussed with the whole team.
- The five central items of resources/deficit description (resources/protective factors of the child/teenager, global assessment of psycho-social adaptiveness, problems/symptoms, disorders/diagnosis, and severity of disorders) should be discussed in any case to get as complete a picture of the client as possible.
- The glossary giving guidelines for the correct understanding of EVAS-items should be kept at hand for consideration.
- A time frame should be set within which EVAS will be discussed. If time and duration for the discussion of EVAS-forms are set, it will be easier to develop a routine.

Advantages of EVAS

The use of EVAS can support the care planning process. This applies to different levels of planning:

- Use of the program will lead to uniform language use and understanding of terminology and ease communication.
- EVAS helps structure case discussions.
- The use can be connected to the care planning and complements youth care services reports by using case-specific graphics to display the development of the client.
- Last but not least, the program helps the management to compare with other youth care institutions, and therefore can be used for quality development and argumentation, concerning for example payment negotiations.
- Prerequisite for the use of all IT-based programs is the smooth integration in existing work processes.

V.2.2 Prospects

Pedagogical professionals in educational assistance complain (justified or unjustified does not play a role at this point) about increasing expenditure of time for documentation, leaving less time for the work with children/teenagers. At the same time, the tendency to use software for client administration, accounting, duty schedules, cash management etc. will rise.

Furthermore, in the long run, it will be unavoidable to document structures, processes and effects of work, as it is done with EVAS, to be able to evaluate them.

Additionally, public institutions in youth care increasingly want to document processes and results of care they are responsible for in a standardized manner and dictate which instruments should be used by care givers.

In order to ease the workload for pedagogues and to avoid redundant documentation of similar information in different systems, it is necessary to make the different applications more transparent and compatible with each other. Prerequisites for this are:

- Different providers have to offer interfaces to their program to facilitate data distribution.
- The implementation of software programs in private and public institutions has to be coordinated, the ideal case being the supplementation and modification (not replacement) of processes already in use. This can only be realized, if programs are flexible and can be adapted. The revision of EVAS aims at this goal, and in turn adapts to the fact that types of care are becoming more flexible and individual.
- Another aspect concerns the training of pedagogical professionals. It cannot be denied that pedagogy with all its nuances has to be the focus of vocational or academic education. But, at the same time, future pedagogues have to be made aware of the use and importance of documentation/evaluation using software programs. As soon as they enter work practice they will be confronted with the topic. Appropriate preparation will raise acceptance for documentation and computer use and at the same time lower time expenditure for the introduction into the topic during work.

V.3 Summary

Digital data documentation and real living environment

Social work always presents the use of digital documentation programs with a challenge, because dynamic changes in life situations are always difficult to document and also digital documentation of data always strives for standardization that cannot suit every individual case. Nevertheless, it has prevailed in this sector as well in recent years.

The reasons for this are the advantages of EDP-based documentation. On a practical level digitally entered data tends to be more legible, complete and correct. Furthermore, data once stored is easily accessible – even when using different search parameters.

Overall, the effectiveness of such data is high, because they can be used in the care planning process as well as to legitimize the use of financial resources. This includes both local and global concepts. At the same time appropriate data privacy has to be taken care of with the help of agreements on access rights.

When EDP-based documentation is implemented in an institution, it is important to win over all employees. This can be done by offering appropriate training, giving access to manuals and offering opportunities to give feedback. Also generally considering the role of technology in social work is important.

Available software solutions on the market, be it decentralized programs in the institutions or documentation and evaluation tools in the form of web-based data bases, offer various kinds of support when it comes to care planning.

The question here is not which of the two kinds to use. Rather a combination of the two can be useful: Software for daily documentation of client data supplemented by an evaluation tool which can show the development of the client taking resources and deficits into consideration, while fitting the rhythm of care planning.

To keep the workload of documentation at a minimum it is necessary to coordinate new processes and methods with existing systems or if necessary to replace them. It is important to check whether redundant data was collected and consequently to revise the process. Furthermore, the topics “documentation“, “evaluation“ and “IT“ have to move into the focus when training pedagogues.

V.4 Exercises

1. Please assess the advantages of EDP-based documentation in the field of child and youth care and give reasons for your consideration.
2. Explain why focusing on the acceptance of employees is important when implementing EDP-based documentation.
3. Explain what is meant by "dilemma of standardization" in the context of this kind of communication and consider the question in how far it is possible to avoid such a dilemma. Please give reasons for your opinion.
4. Which kinds of IT-based documentation in the context of care planning can be differentiated?
5. Name the use of both kinds and describe the basic differences.
6. Which requirements have to be fulfilled to avoid the staff perceiving the implementation of electronic processes as a burden?

Further reading

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IV. Introduction to Statistics

Katharina Gries & Jana Wirz

VI.1 Introduction

VI.1.1 Why statistics?

What are statistics?

When we talk about statistics we mean an empirical methodology that provides information on statistically measurable mass phenomena in the form of tables and diagrams. Thus, statistics deals with

- mass phenomena, i.e. frequently occurring events, which
- can be numerically registered (Holland/Scharnbacher 2010, 2).

James Callaghan said that statistics can prove anything, even their opposite.

A quote from the Marburger Express confirms this statement. It states that in the seventies 20% of children with cardiac disease died in their first year and today 80% survive. While this statement probably tries to suggest an improvement in medical care it does not, because logically 80% have to survive if only 20% die (Benesch 2013, 1-2).

Due to the great importance of statistics in politics, media, research and society it is useful to know how statistical results are arrived at. But not only in everyday life is an adequate use of statistical material important. In a professional work environment statistics can provide information that can help make decisions. Its role in this context is it to improve the quality of decisions (Holland/Scharnbacher 2010, 3).

VI.1.2 Why statistics for pedagogues?

Statistics for pedagogues

Apart from supporting the decision making process, statistical data describe reality and show correlations and configurations. In a child and youth care institution this means that statistics can show the development of children during the care process and also give important information on particularly effective interventions and on general effect-relevant factors.

On this basis decisions can be made for further care plan goals for the child. Data concerning the children in this context can help inspire a reflection process that will eventually improve the quality of pedagogical work. Using the data on their work institutions can also compare their achievements to other institutions and find strengths and weaknesses in their performance. This creates an important fundament for quality assurance in the institutions.

VI.2 Empirical social research

Empirical social research

Before we turn to statistical methodology and the most important statistical concepts the framework in which these are used should be introduced, so that the results of a survey can be better evaluated. First the term of empirical social research and the approach will be introduced here.

VI.2.1 Terminology and goals of empirical social research

Empirical social research provides "methods, techniques and instruments to conduct empirically correct studies on the human behavior and other social phenomena." (Häder 2010, 20, translated from German)

The goal is to gain insight in social reality, the behavior of people and social correlations (ibid.).

In general, quantitative and qualitative methods are distinguished in empirical social research. The differences are shortly illustrated in the following.

VI.2.2 Quantitative and qualitative methods of empirical social research

Quantitative and qualitative methods

Quantitative and qualitative social research are distinguished by fundamental assumptions.

The goal of quantitative studies is to uncover social structures and rules unrelated to the individual by generalizing social situations and making them measurable to be statistically analyzed. Qualitative studies on the other hand focus on understanding human behavior. While quantitative empirical research is based on an analytic-nomological approach, qualitative research is characterized by an interpretative approach (Häder 2010, 67-68).

These generally different assumptions lead to basically different methodological approaches of quantitative and qualitative empirical research. Quantitative research seeks to utilize highly standardized methods paying only minimal attention to subjective influences in order to secure objective results. Qualitative methods study individual cases extensively (Häder 2010, 69). Differences of the two approaches are further illustrated and summarized in the following table:

	Quantitative Research	Qualitative Research
Background	▪ Natural sciences	▪ Humanities and social sciences
General interest and research objective	▪ Causal links ▪ Generalization of large samples of the population ▪ Data in quantifiable form ▪ Testing of hypotheses	▪ Study of life situations, interactions and subjective experiences ▪ Data in the form of texts ▪ Formulating hypotheses
Principles of approach	▪ Subject as object (behavior expressed in numbers) ▪ Standardized, structured approach ▪ Deductive (inferring from general to individual)	▪ Subject-oriented (description and interpretation of behavior) ▪ Open, flexible approach ▪ Inductive (inferring from individual to general)
Methods	▪ Standardized surveys (questionnaires) ▪ Physiological/psychological measurements	▪ Open interviews ▪ Observation ▪ Content analysis ▪ Biographical methods
Advantages	▪ Standardized and structured methods (repeatable) ▪ Low costs and expenditure of time ▪ High objectivity and comparability	▪ Method adapted to subject of research not vice versa ▪ Consideration of individual cases leads to more detailed information
Disadvantages	▪ Individuality and social context not considered ▪ Rigid structures prevent flexible studies	▪ Often not representative ▪ Time and cost consuming ▪ Subjective influences (of the researcher) when interpreting data
Example	▪ To what extent do pedagogues have the abilities and attitudes necessary for their future work?	▪ How do children and adolescents experience certain care measures?

Tab. 1: Overview over some features quantitative and qualitative methods of empirical social research (own source).

Statistical methods are mostly used in the context of quantitative social research when analyzing data (evaluation phase). They are also embedded in a research process consisting of various steps from data collection to processing and analysis.

VI.3 Basic concepts in statistics

It has been established that statistical studies fulfill a variety of tasks. They are supposed to describe reality, uncover correlations and structures and improve decision quality. In a professional environment, such as child and youth care, statistical studies can encourage reflection processes, uncover strengths and weaknesses in service provision and improve service quality.

It has also been established that a statistical analysis is only one step in a more complex, quantitative research process consisting of various work steps. In order to be able to interpret simple statistics in the form of tables and graphs a short introduction on statistical methodology and basic concepts will be given.

VI.3.1 Statistical methodology

Descriptive and inductive statistics

Statistical methodology is divided in two parts, descriptive and inductive statistics:

- Descriptive statistics provide methods of collecting, systematizing and describing large amounts of data. Mostly these data are then presented in tables or graphs.
- Inductive statistics use approaches that allow making conclusions, using a sample of data, about the whole. These conclusions are based on statistical tests and probability calculations (Bankhofer/Vogel 2008, 4; Benesch 2013, 6-7; Holland/Scharnbacher 2010, 3).

VI.3.2 Population, sample and attributes

Population and sample

Every statistical survey is based on the two basic concepts of population and attribute. Population means the whole of objects or individuals in a statistical survey, also called observation or investigation units, of which at least one attribute is investigated.

If only a part of the population is looked at, this is called a sample. This is defined as follows: A sample is a subset of all investigation units that should represent the survey-relevant attributes as closely as possible (Bortz/Schuster 2010, 80).

Here, the dispersion of attributes in the sample is taken as indicative of the dispersion of attributes in the population. This is only an estimation of the dispersion of attributes but can be exactly calculated and substantiated using probability calculations (Bücker 1999, 22).

The sample has to be representative in order to arrive at valid conclusions on the population, meaning that it should be as similar in make-up to the population as possible (Bortz/Döring 2006, 397).

Often a sample is used because a complete survey is too time-consuming and costly or not possible at all (Atteslander 2008, 257; Bortz/Döring 2006, 395).

The following graphic illustrates the relationships between population, sample, investigation unit and descriptive/inductive statistics:

Investigation units and attributes

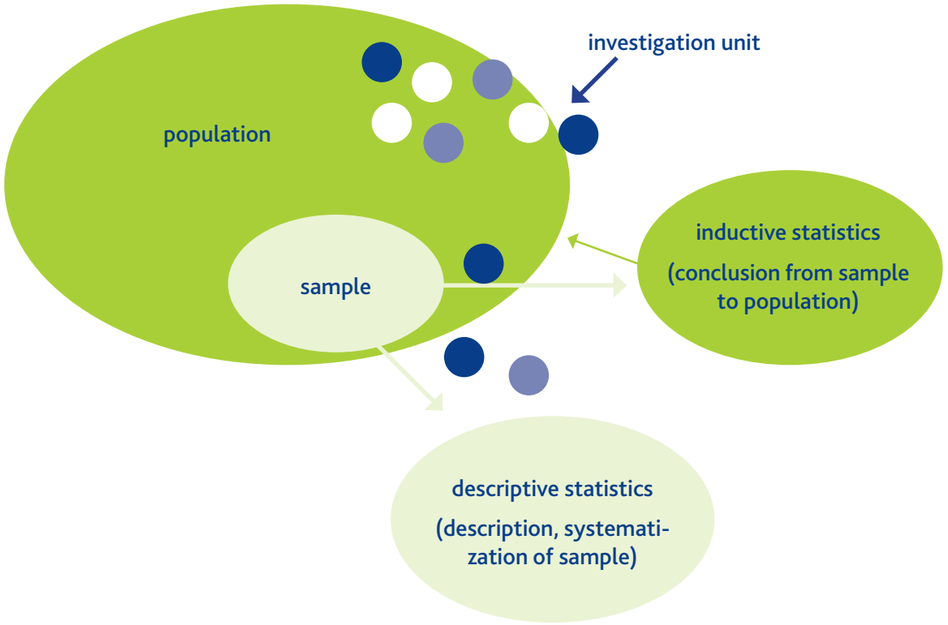

Fig. 1: Relationship between population, sample, investigation unit, descriptive and inductive statistics (own source).

Scales

Investigation units can be, for example, people, animals, plants, households or hospitals. The investigated characteristics are called attributes or, when operationalized, variable.

The (investigation) unit 'person' can be described by attributes such as gender, age, height and weight. These attributes can have different values, for example, for gender male or female, for height 165 cm, 180 cm etc., for weight 55 kg, 65 kg etc.

To measure the values of variables different scales are used, and different statistical methods ask for different scales of measurement. These are:

- Nominal scale is used to illustrate a simple classification between same and different, such as, for example, concerning hair color or religion.
- Ordinal scale is used to establish a rank order, while the ratio of values cannot be interpreted, e.g. satisfaction with democracy.
- Interval scale, where intervals of difference between values are regular and therefore interpretable, e.g. temperature in Celsius or year of birth.
- Ratio scale additionally makes it possible to interpret the ratio of two values, e.g. income (Häder 2010, 97).

The following graphic shows the relationship between investigation unit, attribute, value and scale:

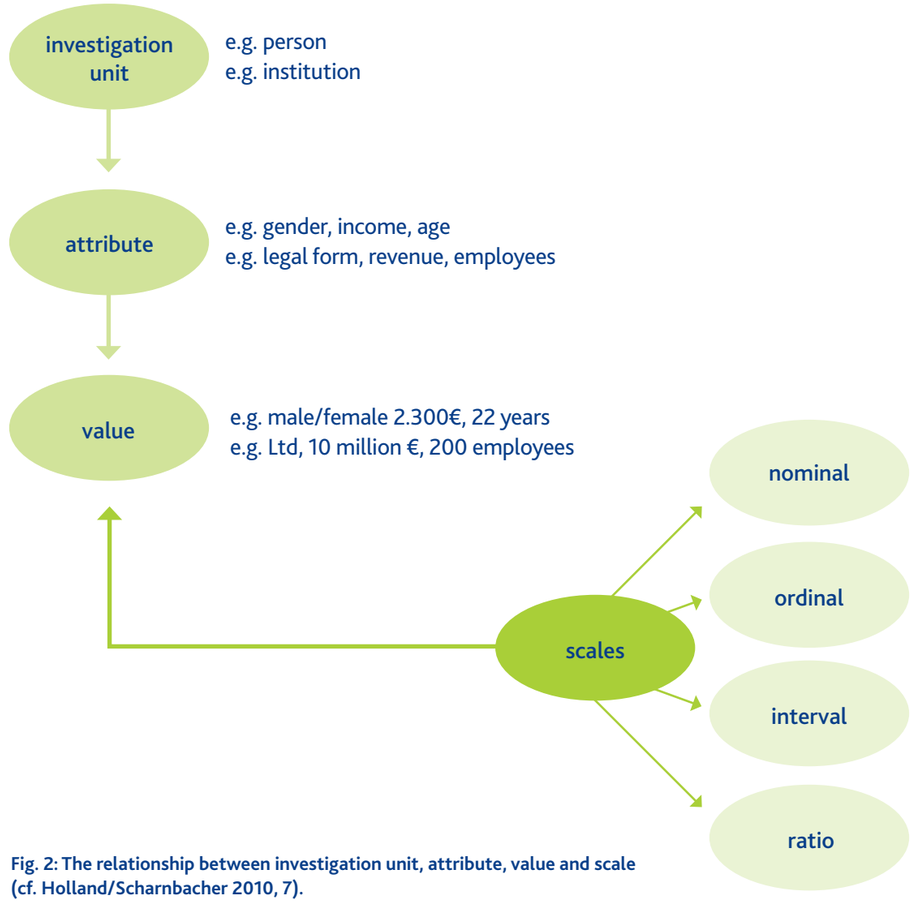

Fig. 2: The relationship between investigation unit, attribute, value and scale (cf. Holland/Scharnbacher 2010, 7).

Frequency distribution

Measure of location

VI.3.3 Summary statistics

An essential task of descriptive statistics is the description and presentation of frequency distribution of certain attributes. This makes up the whole of all absolute or relative frequencies of values and is usually illustrated in form of frequency tables and graphs (histograms, pie charts etc.).

Tables and diagrams give a first overview of the structure of frequency distributions in regard to a certain attribute.

Using summary statistics significant information and characteristics of frequency distributions, and also smaller differences, can be visualized.

In addition, frequency distributions can be made comparable.

Summary statistics are divided in measures of location, dispersion and shape (Bankhofer/Vogel 2008, 27; Holland/Scharnbacher 2010, 43). Measures of location and statistical dispersion are introduced and briefly summarized in a table:

Summary statistics	
Measures of location	**Measures of dispersion**
Measures of location give information about the central tendency of distribution.	**Measures of dispersion give information about the spread of values, i.e. how close to or far from the center they are.**

Tab. 2: Summary statistics (own source).

VI.3.3.1 Measures of location

Location parameters are a point on the measure scale where an attribute X has its average value. These values are also called mean (Bankhofer/Vogel 2008, 27). They describe the central location, or central tendency of distribution. The hereafter introduced measures of location (or mean) are mode, median and arithmetic mean.

Mode

Mode

The mode is the value that appears most frequently in a set of data. It can often be found directly in a table. However, it mostly does not accurately represent the information the whole set of data gives.

Example: The grade distribution in an exam is illustrated in the following table.

Grade	1	2	3	4	5	Total
Number	5	7	14	13	6	45

Since the grade 3 is the most frequent, it is the mode of distribution. Further information on the grade distribution cannot be obtained this way (Holland/Scharnbacher 2010, 43-44).

Median

Median

The median is the central value and can be found when sorting all values from highest to lowest. This means that the data have to be at least on an ordinal scale.

The median is the middle value that divides the list of values in a lower and a higher half. So, there are as many values lower than the median as there are values higher (Holland/Scharnbacher 2010, 45-46).

An advantage of the median is that it is not vulnerable to values very far away from the average (Bankhofer/Vogel 2008, 30).

For an uneven number of values the median is calculated as follows: $z = \frac{n+1}{2}$

Example: 7 stores in a department store chain generated the following revenues in the last year (in million €): 67, 75, 54, 115, 53, 84, 76

Sorted from lowest to highest one arrives at the following list: 53, 54, 67, 75, 76, 84, 115

The list includes n=7 values. The median number is $z = \frac{7+1}{2} = 4$.

The fourth element in the list is the median value $\tilde{x} = 75$ million €.

If the list is an even number of values in the population there is no middle value. In this case the median is the mean of the two middle values.

Example: If the above list of revenues was expanded by the revenue of another store (120 million €), the list would look like this: 53, 54, 67, 75, 76, 84, 115, 120

The number of elements in the list is now n=8, and the median number is $z = \frac{8+1}{2} = 4.5$

So, in this case, the median is the value between the 4th and 5th element in the list, $\tilde{x} = 75.5$ million € (Holland/Scharnbacher 2010, 45f.).

Arithmetic mean

Arithmetic mean

The most commonly calculated mean value is the arithmetic mean which is also often just called average.

It is suited for metrically scaled observation values.

The arithmetic mean is the sum of attribute values divided by their number:

$$\bar{x} = \frac{(x_1 + x_2 + x_3 + \ldots + x_n)}{n} = \sum_{i=1}^{n} xi$$

Example: The mean revenue of the 7 stores with the revenues (in million) 53, 54, 67, 75, 76, 84, 115 is calculated as follows:

$$\bar{x} = \frac{(53+54+64+75+76+84+115)}{7} = \frac{(524)}{7} = 74.857 \text{ million €}$$

So the arithmetic mean of revenues is 74.86 million € (Holland/Scharnbacher 2010, 47-48).

Example

A pedagogue wants to calculate the mean age of the 10 children and adolescents in the day group she takes care of. The age distribution in the group is as follows:

Age in years	7	9	10	12	13	17
Number (n=10)	2	1	2	3	1	1

Since she paid good attention in statistics, she knows that she has three options to calculate the average (measure of location).
The value which occurs the most often in the table is the mode.
In this case, three of her children are 12 years old and no other age occurs as often as this one. So, the mode is 12 years.
She remembers that one of the children in the group turns 10 tomorrow, so there will then be 3 children aged 10 and 3 children aged 12. So, the distribution has two modi, namely 10 and 12 years.
Now, the pedagogue wants to calculate the median of age distribution. Since she already knows that some values occur more than once, she knows that she can solve this problem by calculating the arithmetic mean of all values that are the same. First, she ranks the values from lowest to highest:

Observation value (age in years)	7	7	9	10	10	12	12	12	13	17
Rank	1	2	3	4	5	6	7	8	9	10

She can see that ranks 1 and 2, ranks 4 and 5, and the ranks 6, 7 and 8 have the same values respectively.
She calculates the mean of the ranks with the values 7, meaning she adds up ranks 1 and 2 and divides them by 2. She arrives at the rank 1.5 for both values 7. She proceeds in the same way for the other values and arrives at the following rank list:

Observation value (age in years)	7	7	9	10	10	12	12	12	13	17
Rank	1,5	1,5	3	4,5	4,5	7	7	7	9	10

Now she only has to find the middle of distribution i.e. the value that separates the list in two halves. Therefore she calculates: $z = \frac{10+1}{2} = 5.5$

The median of distribution here is located between the ranks 4.5 and 7, or the observation values 10 and 12. When calculating the mean of those two values one arrives at 11 as the median of distribution. But that still is not enough for the pedagogue. Now she wants to see what the arithmetic mean of this distribution looks like. So she adds up all values, i.e. 7+7+9+10+10+12+12+13+17 and arrives at 109. In the next step she divides this number by the number of observation units (10) and calculates the arithmetic mean of 10.9 years of age.

Summary

Measures of location (mean values)		
Mode	Median ($\tilde{x}$)	Arithmetic mean ($\bar{x}$)
Mode means the value occurring most frequently in a set of data.	The median divides a list of ranked frequency distribution values in the middle. It is the mean value of the frequency distribution.	The arithmetic mean is the average calculated from the sum of all values divided by their number of units.

Tab. 3: Measures of location (own source).

Measures of dispersion

VI.3.3.2 Measures of dispersion

While the measures of location provide important information on the frequency distribution, they do not say anything about how far the values are scattered from the mean. The following graph shows three distributions with the same mean but very different dispersions.

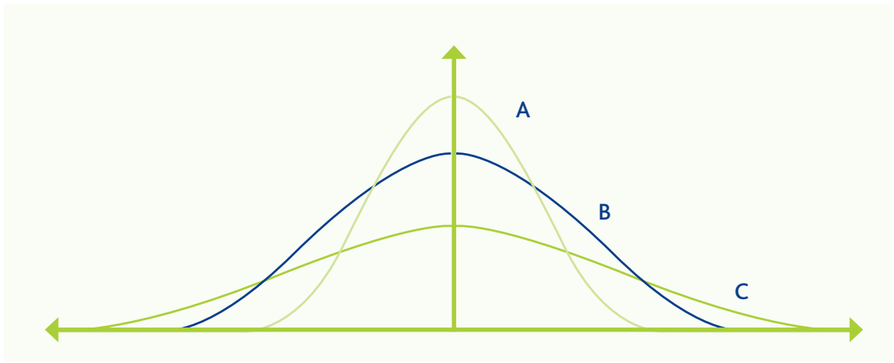

Fig. 3: Three distributions with the same mean but very different dispersions (cf. Holland/Scharnbacher 2010, 51).

These three distributions are clearly distinct in the dispersion of values. The measures of dispersion can provide information about the degree of the dispersion. The most important measures are (empirical) variance and standard deviation (Bankhofer/Vogel 2008, 32).

Range

Range

Range is the difference between the smallest and the largest values in a set of data.

The range of revenue values in the earlier example of stores is: 115 million €-53 million € = 62 million €.

It is only meant to give a short overview of the distribution. Extreme values can distort the range, since, then, only the two extreme values (the smallest and the largest) factor in the calculation (Holland/Scharnbacher 2010, 51-52).

Empirical variance and standard deviation

Empirical variance and standard deviation

The most important and most frequently used measures of dispersion are variance and its square root, standard deviation.

These are not particularly vulnerable to extreme values, so using them makes sense.

Variance describes the mean squared deviation of values from the arithmetic mean and is calculated as follows:

$$\sigma^2 = \frac{\sum (xi - \bar{x})^2}{n}$$

In order to avoid problems of interpretation regarding the results the standard deviation, i.e. the square root of the variance, is calculated. The unit of measurement of the standard deviation always corresponds to the attribute (Bankhofer/Vogel 2008, 33; Holland/Scharnbacher 2010, 53-54).

The higher the standard deviation the more dispersion from the average, and the bell curve broadens. This is shown in the graph below:

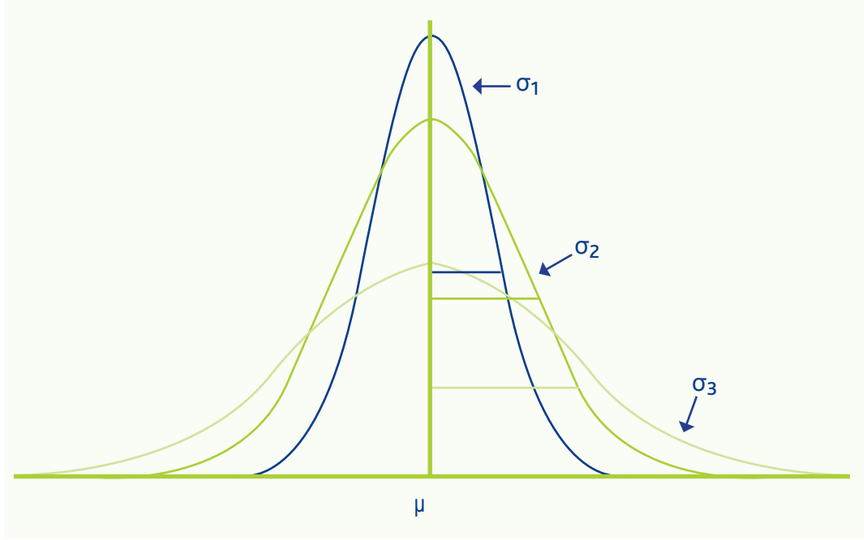

Fig. 4: Different standard distributions with the same arithmetic means but different standard deviations (cf. http://www.6sigma-tc.de/).

Example: Now, the variance and standard deviation has to be calculated for the above mentioned 7 stores with an mean revenue of 74.86 million €.

The revenues are: 53, 54, 67, 75, 76, 84

$$\sigma^2 = \frac{(53-74.86)^2+(54-74.86)^2+(67-74.86)^2+\ldots+(115-74.86)^2}{7} = 381.551$$

The variance then is 381.551. Since the unit of measurement is €², it is difficult to interpret. Therefore, it is useful to calculate the standard deviation:

$\sigma = \sqrt{381.551} = 19.533$

Thus, the stores' revenues deviates from the arithmetic mean on average by 19.533 million € higher or lower (Holland/Scharnbacher 2010, 54-55).

Example

The pedagogue has already calculated three different measures of location for the age of her group. Reminder: The mode was 12 years of age, the median 11 years and the arithmetic mean 10.9 years. Now she wants to know the dispersion regarding age. She uses the same table again:

Age in years	7	9	10	12	13	17
Number (n=10)	2	1	2	3	1	1

She immediately sees that the youngest children are 7 and the oldest teenager is 17. Using this two values she can easily calculate the range of distribution, since she only has to subtract the lowest (7) from the highest value (17).
She arrives at: 17-7=10, so the range of ages is 10 years.
Now she wants to calculate the standard deviation, so she first calculates the variance as follows:

$$\sigma^2 = \frac{(7-10{,}9)^2+(7-10{,}9)^2+\ldots+(12-10{,}9)^2+(12-10{,}9)^2+(12-10{,}9)^2+(13-10{,}9)^2+(17-10{,}9)^2}{10} = 8.09$$

The variance for this distribution, thus, is 8.09 years². Because this information is difficult to interpret she calculates the standard deviation, i.e. the square root of the variance:

$\sigma = \sqrt{8.09} = 2.84$

The standard deviation is 2.84 years. This means that the age deviates from the arithmetic mean by 2.84 years of age.

Summary

Measures of dispersion		
Range	Empirical variance (σ^2)	Standard deviation (σ)
Difference between the smallest and the largest attribute value.	Defined as the sum of all attribute values deviating from the arithmetic mean squared divided by the number of values.	Square root of the variance. It is better suited for interpretation, since the unit of measurement corresponds to the attribute value.

Tab. 4: Measures of dispersion (own source).

VI.3.4 Statistical test methods

Test methods for hypotheses

Using statistical test methods it can be tested which hypothesis (null hypothesis or alternative hypothesis) is valid (Bortz/Schuster 2010, 99). Hypotheses are statements that are derived from general theories. Alternative hypotheses are hypotheses that exceed the current state of research.

There can be directional and non-directional alternative hypotheses. Directional alternative hypotheses require more previous knowledge than non-directional alternative hypotheses. Also, directional alternative hypotheses are easier to prove.

Alternative Hypotheses

Example of a directional alternative hypothesis and a non-directional one:

- **Directional alternative hypothesis**
  The new teaching method is better than the old teaching method.
- **Non-directional alternative hypothesis**
  The new teaching method differs from the old one in some way
  (Bortz/Schuster 2010, 97-98).

In order to test a research hypothesis (or alternative hypothesis) it has to be transformed into a statistical research hypothesis.

The statistical alternative hypothesis (H1) of the above example is the following:
The average performance of students taught with a new method is better than the average performance of students taught with the standard method.

A content hypothesis can be transformed into one or more statistical alternative hypotheses varying in detail (Bortz/Schuster 2010, 98).

Null hypothesis

In order to be able to perform a statistical test a null hypothesis (H0) is needed besides the alternative hypothesis. It competes with the alternative hypothesis and usually states that the alternative hypothesis statement does not apply.

An example of a null hypothesis is:
The new method is as good as the standard method.

Statistical tests are performed to find out whether the null hypothesis applies or not. In this case a statistical test is "a rule that makes it possible to decide whether the null hypothesis or the alternative hypothesis applies for every sample result" (Bortz/Schuster 2010, 99; translated from German).

Whenever the null hypothesis does not apply it is assumed that the alternative hypothesis is correct (Bortz/Schuster 2010, 99). "The null hypothesis is dismissed in favor of the alternative hypothesis" (Bortz/Schuster 2010, 99; translated from German).

It is possible that a null hypothesis is rejected in favor of the alternative hypothesis even though it is correct. This is called a type 1 error.

To check and minimize the type 1 error the sample's mean value has to be in the critical area. The critical area is located where it is very unlikely to find the mean value if the null hypothesis is true.

Significance level

Bordering on the critical area is the area of statistical significance (alpha level) and it gives the probability of the sample data lying in the critical area even though the null hypothesis is true.

So, the statistical significance has two different functions. First, it denotes the border to the critical area, and second, it gives the probability of a type 1 error.

Statistical significance is set at the value $\alpha = 0.05$ or $\alpha = 0.01$. An alpha level of $\alpha = 0.05$ means that there is a 95% probability that the null hypothesis is true and only a 5% probability that it is not.

If the mean value lies in the critical area, i.e. under $\alpha = 0.05$, the result is significant and the null hypothesis is rejected (Pospeschill 2006, pp. 163).

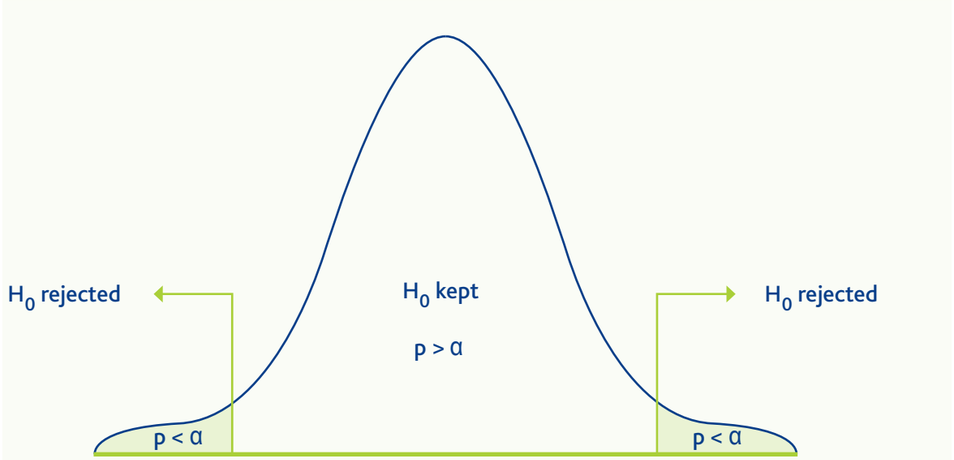

Fig. 5: Area of acceptation and rejection of null hypothesis in a distribution (cf. Pospeschill 2006, 169).

VI.3.5 Correlation

Correlation

In sample data sets two random variables or attributes often show a relationship (correlation, dependence). And of interest is not only whether there is a relationship between two attributes but also how close this relationship is.

Measuring the closeness or the degree of correlation is called correlation analysis (Bücker 1999, 79).

Using the correlation coefficient the degree of correlation can be calculated on different scales. The correlation coefficient describes "the degree of linear correlation between two variables denoted r, between +1 and -1. When r = +1 it is a perfect direct linear relationship, and when r = -1 it is a perfect inverse linear relationship. When r = 0 there is no linear relationship" (Bortz/Schuster 2010, 157).

As |r| approaches zero the linear dependence becomes smaller between two variables (Atteslander 2008, 249). This most common correlation coefficient is called the Pearson correlation coefficient or product-moment correlation coefficient.

The correlation is calculated using this formula:

$$r = \frac{n\sum_i x_i \cdot y_i - (\sum_i x_i)\cdot(\sum_i y_i)}{\sqrt{[n\sum_i x_i^2 - (\sum_i x_i)^2]\cdot[n\sum_i y_i^2 - (\sum_i y_i)^2]}}$$

An example for the calculation is illustrated in the following table:

Count	x	y	x^2	y^2	x • y
1	2	1	4	1	2
2	1	2	1	4	2
3	9	6	81	36	54
4	5	4	25	16	20
5	3	2	9	4	6
Total:	20	15	120	61	84

Tab. 5: Example for the calculation of the correlation formula (source: Bortz/Schuster 2010, 157).

When inserting the values into the formula one arrives at:

$$r = \frac{(5\cdot 84 - 20\cdot 15)}{\sqrt{((5\cdot 120 - 20^2)\cdot(5\cdot 61 - 15^2))}} = 0.95$$

So, there is a correlation of r = 0.95. This means a direct linear correlation since r is approaching +1, and the degree of linear correlation between these two variables is large because it is close to +1.

Correlations cannot be interpreted regarding causality without considering additional information.

Of course, some causal relationships can be established, for example, x causally influences y, or y causally influences x, but conclusions on the accuracy of the interpretation cannot be drawn on the basis of this. For a causal dependence correlation between two variables is necessary but not a sufficient condition (Bortz/Schuster 2010, 159-160).

There are various correlation coefficients for different types of scales. In the ordinal scale, for example, the rank correlation coefficient rs is used. Here, the rank correlation coefficient rs is identical to the product-moment correlation coefficient while rank data is used in the formula (Bortz/Schuster 2010, 178-179). The table shows which correlation coefficients are used for which scale types.

Correlation types

Correlation types			
	Interval scale	**Dichotomous variable**	**Ordinal scale**
Interval scale	**Product-moment correlation**	**Ponit-biserial correlation**	**Rank correlation**
Dichotomous variable		**Φ-coefficient**	**Biserial rank correlation**
Ordinal scale			**Rank correlation**

Tab. 6: Correlation types (own source).

VI.4 Summary

Statistics are an important field investigating mass phenomena. For example, their extent, development over time or the relationship of these phenomena to each other can be investigated. Using a variety of statistical methods and procedures, data can be visualized, analyzed and interpreted. In child and youth care the use of statistics makes it possible to make generalizable statements on care processes in certain groups of adolescents or on processes of certain care types. Additionally, important relationships between individual client groups and care types can be investigated in regard to goals, measures or effects.

VI.5 Exercises

1. What function does statistics have?
2. Which of the two empirical methods uses statistics?
3. What is the difference between population and a sample?
4. What is an observation unit, an attribute and an attribute value?
5. What is the basic difference between measures of location and dispersion?
6. What advantage does the median have? What disadvantage does the mode have?
7. In a recall test participants are read 12 separate words. Afterwards, they note down the words they remember. The results are the following:

Number of remembered words	0	1	2	3	4	5	6	7	8	9	10	11	12
Number of persons	0	0	3	0	2	5	5	8	10	13	9	4	4

   Please calculate:
   a) mode
   b) arithmetic mean
   c) range
   d) standard deviation

8. In the course of an evaluation you receive the following table with the ages of adolescents at care commencement:

	Number	Mean	Mode	Min	Max	s
Age at care commencement	23059	12.9	15	0	22	4.1

Age is arrived at by using information on birth year and month
Number = all valid information, mean = mean value, mode = most frequent value, min = smallest value, max = largest value, s = standard deviation

   Please, interpret the data. Consider the following questions:
   What is the average age? What age is the most frequent?
   What conclusions can be drawn from the discrepancy between the two measures of location?
   How large is the range?
   How high is the standard deviation?
   How do you evaluate the dispersion?

9. The pedagogue mentioned in the examples above now wants to publish the collected information on the age of the children in her group in a short newsletter. But she is not sure which measure of location and dispersion she should use. Which measures are best suited to represent the central tendency and dispersion regarding the age? Discuss advantages and disadvantages of all measures of location and dispersion and make a recommendation.

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Karl-Heinz Adams, born in 1958, study of theology and German studies in Trier, Freiburg and Saarbrücken, vocational training as pastoral assistant. Teaching from 1990 to 2011 at the Marienschule in Saarbrücken (subjects German and religion); contribution to external evaluation of schools in Saarland. Since September 2012 head of the ILF in Saarbrücken.

Lisa Beutin, born in 1991, since 2011 B.A. student of Social Work at KH Mainz.
Focus of work: child and youth care, assistance to the homeless.

Mechthild Denzer, born in 1959, M.A., pedagogue and motologist, since 2002 head of KFS in Saarbrücken.
Work in group-supplementary service in youth care in Germany and Romania for 12 years, since 1997 in teaching.

Thomas Feilen, born in 1969, study of Pedagogics/Social Pedagogics (Diplom), study of Supervision (Master of Arts).
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Sandra Füller, born in 1990, officially recognized educator, since 2011 student of Social Work at KH Mainz. Practical experience in the fields kindergarten, care center and youth care.
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Katharina Gries, born in 1987, University of Trier: successfully completed Bachelor's degree in Pedagogy; Study of Pedagogy towards a Master's degree.
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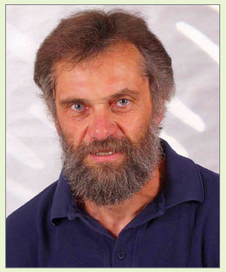

Richard Hammer, born in 1951, Dr. paed., motologist, teacher (physical education/physics); vocational training in gestalt therapy and systemic family therapy; teacher at KFS in Saarbrücken.
Focus of work: child and youth care.

Thomas Hermsen, born in 1962, Dr. rer. soc., since 2000 professor of Sociology and Social Management at the KH Mainz, head of the Institute for Applied Research and International Relations.
Focus of work: effectiveness research in child and youth care, case management, sociology and organizational sociology, non-profit management.

Timo Herrmann, born in 1967, psychologist, head of the department "educational assistance" and head of the project EVAS at IKJ in Mainz
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Franziska Heuser, born in 1991, student of Social Work at KH Mainz since winter semester 2011/2012, study towards a Bachelor's degree in Social Work (B.A.) (2015).
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