



Erasmus+

The EdUSchool triple helix

EdUSchool Good Practices

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1 The EdUSchool triple helix: Framework for identifying Good Practices

1.1 Purposes of the Intellectual Output 2 of the EdUSchool-Project

Schools are learning spaces – not just for pupils, but also for (future) teachers. The so-called “University Schools” are specialized institutions of pre-service teacher training; they unite theory and practice (Gerholz & Wilbers, 2018; Smith, 2016). More precisely, University Schools form strategic alliances between universities and schools to train future teachers in study programs and to shape joint research and school development processes (Gerholz et al., 2020, p. 3). Developing the concept of teacher training in University Schools is a continuous process. This process benefits from the (international) discourse, comparison of different ideas and mutual learning.

The Erasmus+ project EdUSchool (Enhancing European Teacher Education through University Schools) seeks to establish a European understanding of University Schools as an essential source of inspiration for the future of teacher education in Europe. To this purpose, the EdUSchool project has several objectives (Gerholz et al., 2020, p. 3):

- Establishing a European understanding of University Schools as an important stimulus for the future of teacher education in Europe
- Identifying success factors for implementing the concept of University Schools in all affected parties (i.e. non-governmental institutions)
- Identifying Good Practice activities of University Schools in Europe to generate orientation knowledge for teacher educators and teachers at University Schools
- Developing an educational module for teachers at University Schools
- Enhancing exchange processes for people working within the University School framework

For the achievement of these goals, the EdUSchool project is generating four Intellectual Outputs (Gerholz et al., 2020, p. 3): (1) an institutional description of University School Concepts in Europe, (2) a Good Practice collection by comparing the theoretical concepts with practical implementation, (3) an educational module for teachers acting within a University School Concept, (4) a digital handbook with different possibilities to implement the idea of University Schools.

This paper contains the results of the Intellectual Output 2 (Good Practice Collection). The results of Intellectual Output 2 (IO 2) are based on the findings of Intellectual Output 1 (IO 1). The results of IO1 are published in Gerholz et al. (2020).

This article focuses on the collection of Good Practice descriptions of four University School concepts in different European countries. Generating positive experiences, deduced from the existing University School Concepts is the main issue of the collection and disclosure of the Good Practice descriptions. In general, Good Practices reveal “proven solutions”. The Good Practice descriptions serve as a model and a source of inspiration. At the same time, they offer opportunities for the further development of the descriptions in order to be transferred to other contexts. This fact is what distinguishes Good Practices from so called “Best Practices”. The two approaches have different demands on the activities selected and described. The attempt to identify best practices implies the existence of a “best possible way” and that the shown approach could represent the best possible solution (Francis & Holloway, 2007, pp. 172-173). Being the “best”, however, depends on context and situation and is therefore only transferable to other circumstances in a variation (Francis & Holloway, 2007, p. 183). To generate applicability, one has to shorten the range of description. Using Good Practices as a role model constitutes a more pragmatic approach to benefit from the positive experiences and to use “recipes for success” of other parties.

The following article presents the results of the Good Practice Collection of four University School Concepts of the University of Bamberg (OFU), the Masaryk University in Brno (MUNI), the Friedrich-Alexander-University Erlangen-Nuremberg (FAU) and the Norwegian University of Science and Technology (NTNU). Firstly, there will be given a description of the chosen research design and methodological approach (section 1) followed by a description of the reference points of Good Practice (section 2). The core of the essay are the collected Good Practice descriptions (section 3). Finally, the Good Practices are compared and contrasted in terms of their similarities and differences (section 4). Moreover, initial possibilities for transferring the activities to the University of Lisbon teacher-training concept are explored (section 5).

1.2 Research design of Intellectual Output 2

The research design chosen in the EdUSchool project for the identification and description of Good Practice is case study research. The case study research focuses on the description of

particularly interesting cases, which are examined according to a large number of dimensions (Lamnek & Krell, 2016, p. 286). There is no standard concept for the design of case study research. However, case study research can be structured in various ways; it can, for example, cover one single or multiple cases (single case study, multiple case study) and, with regard to the case, strive for a holistic or partial (embedded) illumination (Yin, 2018, pp. 47-48). In the present research project, one has decided to implement the embedded multi-case design. The decision is based on various considerations, which are presented in the following:

The first and central issue is clarifying the case (Yin, 2018, p. 28). This clarification depends on the concrete goal of the research, in this concrete case, the collection of Good Practice descriptions for University School Concepts. The diversity of the individual University School Concepts identified in IO1 requires the design of a separate case from each of the concepts, which results in a multi-case study. The selection of cases is limited to the University School Concepts of the participating project partners of the EdUSchool project. With this definition of the cases, it is not yet clear what the reference point for "Good Practice" should be. Good Practice can concern and describe entire institutions as a whole, but also can address only single processes within an institution. Based on this consideration, case study research can either promote a holistic view and thus the description of Good Practice University School Concepts in a more general perspective (institution as Good Practice); or it can illuminate embedded activities within University School Concepts (activity as Good Practice).

The holistic approach focuses on the individual University Schools as institutions. As such, certain University Schools in specific locations may represent Good Practice, e.g. the NTNU University School. Following this approach, it is possible to describe the Good Practice together with the criteria developed in IO1 to gain a deeper understanding. Nevertheless, this approach contains a severe challenge: the transfer of the Good Practice to another context is almost impossible due to the holistic nature of the approach and the diversity of the particular contextual conditions. In this way, the idea of the EdUSchool projects of mutual learning and transfer of ideas from one concept to another would be thwarted. By choosing the holistic approach, there would be the risk of either not realizing transferability of the results to new contexts or forcing copies of the original University School Concepts due to fitting problems.

The second approach is different. The collection of Good Practice descriptions for IO2 relies on this approach. The second approach detaches itself from the institutional focus and instead focuses on specific activities or processes within the respective University School Concepts. This also has the advantage that one institution can highlight one (sub-)activity as particularly

successful, while another has yet to improve. The Good Practice collection focuses on the reproduction of the particularly good activities. Based on the result of the IO1 it is possible to distinguish between two main processes: Research and development (R&D) and professionalization (of the different target groups, students of initial teacher training, teachers at University Schools and lectures at the university). A third perspective has extended these two main processes: school improvement. The extension was necessary to include a perspective of institutional or collective learning of the institution respective of the department or school. These sub-processes are outlined below in the form of "helixes". There is a helix for "professionalization", for "research & development" and for "school improvement". These serve as a basis and reference point for identifying and describing Good Practice.

1.3 Methodological approach to Intellectual Output 2

Interviews were used to collect the data. This method allows deep insights into the respective Good Practices of the different University School concepts. The data collection for the Good Practice descriptions was realized in a written survey of the project partners from the universities OFU, MUNI, FAU and NTNU. The data collection for Good Practice descriptions took form in a written survey of the project partners. In the case of a written survey, the typical interview situation, in which an asymmetric communication between interviewer and interviewee takes place, is not applicable. Instead, in a written interview, the interviewee fills in a kind of questionnaire independently. This procedure demands some requirements of the questionnaire: It must be highly standardized and at the same time easy to answer, as the answering process takes place without direct support of the interviewer (Lamnek & Krell, 2016, pp. 324-325). In the present case, data collection was based on a template with open questions (Table 1) in order to produce dense and comparable descriptions of Good Practice. As a further orientation aid, they should define their classification based on the (steps of the) helixes (section 2). The interviewees decided on their own which Good Practice descriptions of University School activities they wanted to prepare.

Step	Lead for completing
Good Practice (name)	(Give a short name of the Good Practice)
Short description	(Give a short description)
EdUSchool helix	(Which helix? Which step/s?)
Institution	(Which institution)
Status	(Planned, just implemented, revised several times)
Action	(How we do it?, Steps within the action?)
Consequences / impact	(What are the intended consequences (goals) and the unintended consequences?)
Conditions (barriers)	(Which barriers can hinder the action?)
Conditions (facilitators)	(Which facilitators can support the action?)
Context	(Which parts of the context of the action are most relevant?) What is needed to implement this action?

Table 1: EdUSchool Template for Good Practice

The project partners were provided with a blueprint (table 2) to ensure that the results are similar:

	Define research fields
Good Practice (name)	Define research fields
Short description	Define R&D-field for student research groups that support school improvement
EdUSchool helix	R&D-helix: Identify educational challenges
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ University requests schools to define research fields on issues that schools are currently dealing with ▪ Coordinate R&D-fields within the school: Mentors, Quality Management Teams / School improvement team, head teacher, school board ▪ Discussion with a university lecturer (e.g. If it is applicable, fulfills the requirement for research projects, fulfil the competency expectations R&D) ▪ Fixing the final list of R&D-fields ▪ Refinement of the research field through student groups with feedback from mentors and university representative
Consequences / impact	<ul style="list-style-type: none"> ▪ Students in pre-service teacher education gain experience with educational research and receive a basic foundation for the application of educational research ▪ Schools can solve problems in the context of school improvement through the feedback of the results
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Research fields too extensive ▪ Problems in the (later) collection of data (e.g. Poor acceptance)
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Confidence ▪ Discreetness

	<ul style="list-style-type: none"> ▪ Openness ▪ Frequent meetings ▪ Routine
Context	<ul style="list-style-type: none"> ▪ Students have to be introduced to the application of research methods ▪ Students need feedback on the research process and research results

Table 2: Example for Good Practice

The interviewed project partners received support and guidance during the creation process, as well as the opportunity to clarify any incomprehension and queries that may arise. Following this, a comprehensibility test with written and oral questions to the respondents was carried out, and the initial results were revised and supplemented by further Good Practice descriptions.

The results were analyzed by comparing the similarities and differences in order to deepen specificities of the descriptions of Good Practice. The evaluation of the data with regard to similarities and differences was carried out using the qualitative content analysis, according to Mayring (2015). The analysis was based on some established categories of the written survey (objectives, approach and actors involved, conditions of implementation) and other subcategories that were inductively extracted from the data material.

In a further step, possibilities to transfer the Good Practices to another context will be explored. For this purpose, a guideline-based expert interview (Flick, 2016, pp. 214-215) was conducted. An expert interview is designed to make use of a person's professional knowledge and experience and to obtain his or her assessment of the object of investigation (Flick, 2016, pp. 214-215). The expert interviewed was the project partner from University of Lisbon. The teacher-training concept of the University of Lisbon is a kind of transfer field for the Good Practice descriptions in the EdUSchool project, because there is no University School concept there yet. The interview focused on the questions: a) Which Good Practice activities could be transferred to the local teacher-training concept? b) What is this selection based on? c) What would need to be done for implementation, what changes are necessary?

1.4 The EdUSchool triple helix: Reference point for identifying Good Practices within the University School concepts

Concrete reference points are needed to support and systematise the identification of Good Practices. The “EdUSchool triple helix” provides these guidelines. Three main processes describe the activities within the University Schools. This resulted, among other things, from

the reception of IO1 (Gerholz et al., 2020, pp. 6-7). They can be found in the model of the EdUSchool triple helix and serve as reference points for the description of Good Practice.

- EdUSchool facilitates a research & development (R&D), which is considered a social process, participatory, collaborative, helical, practical and scientific.
- EdUSchool enables a professionalization based on abstract concepts and concrete experiences in schools.
- EdUSchool enables a process of school improvement respective a process of improvement of the integrated institutions.

The term "helix" is used to describe the processes in the University School concept because processes in the University School concepts are *helical*. The term "helix" may evoke associations with the use of the same word in the biological understanding "DNA" (deoxyribonucleic acid), but there are fundamental differences. DNA is often represented as a double helix. The two helices in the DNA double helix are also strictly parallel, i.e. the two DNA strands within a DNA strand never cross. In contrast, the EdUSchool triple helix consists of three helices that are intertwined.

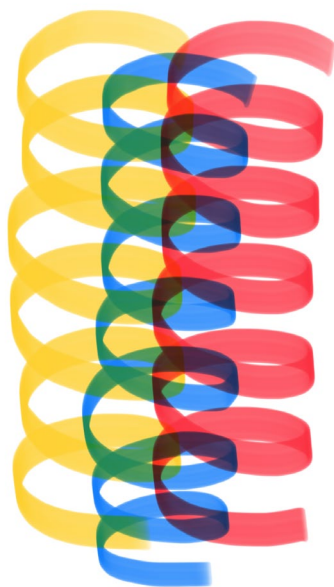


Figure 1: EdUSchool triple helix

The bird's eye view of the three helices shows in a figurative sense different points of contacts.

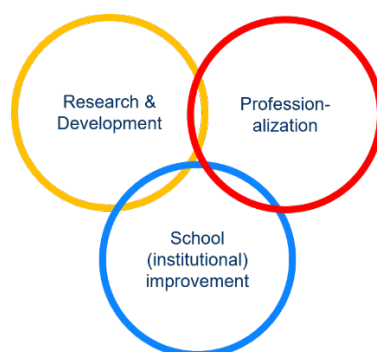


Figure 2: EdUSchool triple helix (top view)

At first glance, the different approaches seem to be only a question of illustrating the main processes or main activities. However, the interweaving of the three helices has severe consequences in practical work: The processes in University Schools cannot be designed with regard to a single helix, e.g. only concerning the R&D process or only about school improvement. The question of perspective also arises at another point: the actors at the university have a different view of processes than the school actors. Inadvertently, this can lead to unintentional contradictions or one-sidedness in the presentation.

2 The EduSchool triple helix

2.1 Helix I: The EdUSchool helix of research & development

EdUSchool facilitates research & development (R&D), which has certain characteristics. Worth mentioning are:

- **Social process:** Research and development in the University School Concept is a social process with different stakeholders. The institutional analysis shows different stakeholders in different national or institutional settings. One thing is for sure: Schools are not only seen as an empirical field and R&D is not only the task of universities.
- **Participatory:** Within the social process, there is a difficult balance of different stakes. Relations between the stakeholder institutions are not hierarchical.
- **Collaborative:** The social process within the University School Concept is collaborative, that means the actors work together on the base of common goals.
- **Helical:** The social process is organized in cycles of understanding, implementing and evaluation.

- **Practical:** R&D in University Schools enables the development of learning in schools.
- **Scientific:** R&D is based on scientific standards and expands the scientific body of knowledge.

R&D in University Schools has many similarities to other ways of conducting research.

- **Action research:** Action research is a broad group of research practices in which three main forms evolved, namely technical, practical and emancipatory (Jacobs, 2018). They share the notion of “learning by doing”. The literature review by James and Augustin (2018) points out that action research can contribute to the professionalization of teachers with an impact on student outcomes and school improvement. However, the success predicated some conditions, for example, mutual respect and resources.
- **Design based Research:** Design based research is a methodology or a paradigm which aims at developing designs for learning through iterative developments (Anderson & Shattuck 2012, Svihla 2014).

On this basis, we can introduce the EdUSchool helix of research & development.

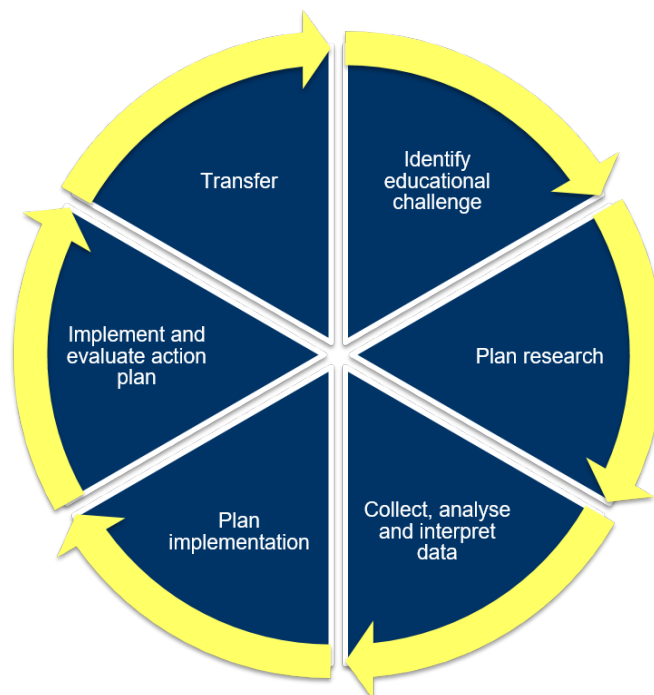


Figure 3: EduSchool helix I: EdUSchool helix of research & development

The EdUSchool helix of research & development has the following steps.

- **Identify educational challenge:** The starting point of the social process is the identification of a problem in a school. The determination of an educational challenge is a process of negotiation between different stakeholders.

- **Plan research:** To tackle this educational challenge, the partners have to develop a research design, e.g. methods to collect data.
- **Collect, analyze and interpret data:** Based on the defined research design data has to be collected, analyzed and interpreted.
- **Plan implementation:** Based on the insights in the data, an action plan for instruction, schools or regulating bodies has to be developed.
- **Implement and evaluate the action plan:** The action plan is implemented and evaluated.
- **Transfer:** The results of the research are communicated resp. transferred. The transfer has different ranges (institutional, local, regional, national, international). The University Schools are often lighthouses in the school landscape.

R&D in EdUSchool is cyclic. Each step is connected with a question that arises within the process.

Step	Description	Questions
Identify educational challenges	The starting point of the social process is the identification of a problem in a school. The determination of an educational challenge is a process of negotiation between different stakeholders.	On which educational challenge should we focus?
Plan research	To tackle this educational challenge, the partners have to develop a research design, e.g. methods to collect data.	How can we structure the R&D, which research methods, which resources, whom to involve, which timeline?
Collect, analyse and interpret data	Based on the defined research plan data has to be collected, analysed and interpreted	What does the collected data tell us?
Plan implementation of insights	Based on the insights in the data and (action plan) for instruction, schools or regulating bodies have to be developed	Which implications does the Interpretation of data have for the practice in classrooms, schools or regulating bodies?
Implement and evaluate the action plan	The action plan is implemented and evaluated	How can we implement these changes and how can we evaluate them?
Transfer	The results of the research are communicated resp. transferred. The transfer has different ranges (institutional, local, regional, national, international).	How can we transfer the results into other areas of the school, other local or regional institutions or internationally?

Table 3: EdUSchool Helix I R&D

2.2 Helix II: The EdUSchool helix of professionalization

EdUSchool enables a professionalization based on abstract concepts as well as actual experiences in schools. This model of professionalization has many similarities to other models of professionalization.

Learning, according to the model of experiential learning is based on the assumption that practical experience is the starting point for effective learning. The most important model experiential learning originated from the work of Kolb and described in various publications (Kolb, 1984; Kolb & Kolb, 2005). The model differentiates four steps:

- **Concrete experience:** Real world experience (,feeling‘)
- **Reflective observation:** Reflection of the real world experience (,watching‘)
- **Abstract Conceptualisation:** Sense-making (,thinking‘)
- **Active Experimentation:** Test out the meaning (,doing‘)

The process of experiential learning in the Kolb-Modell is not always based on real experience. Fieldwork case studies are common ways of supporting this mode of learning (Beck, Boys, Haas & King, 2017). The meta-analysis of Burch et al. (2019), which covers more than 40 years of research, shows that students achieved better learning outcomes when experiential pedagogy was used.

The EdUSchool helix of professionalization covers three different target groups: (1) student teachers, (2) teachers in the teaching profession, e.g. mentors or coordinators, (3) university staff. The primary focus of the EdUSchool helix of professionalization is on student teachers. The EduUSchool concept is primarily a model of pre-service training.

Teacher education needs a normative reference point for legitimate professionalization. Teacher education is not a complete autonomous endeavour of the universities and schools. Instead, education has legitimate external expectations. Thus, teacher education needs competence expectations as a target for the learning of students in pre-service teacher education. These goals have to be enclosed in a cycle of PDCA.

On this basis, one can introduce the EdUSchool helix of EdUSchool helix of professionalization.

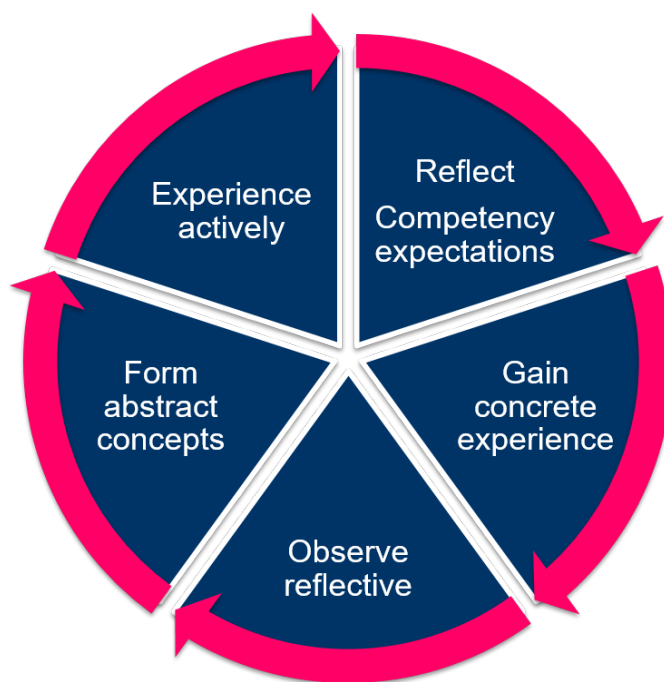


Figure 4: EduSchool helix II: EdUSchool helix of professionalization (learner perspective)

The EdUSchool helix of professionalization contains the following steps.

- **Competence expectations:** Competence expectations are the starting point of instructional considerations.
- **Concrete Experience (Experiencing):** Fields of experiences are the classroom (instruction, classroom management) as well as fields of experiences outside the classroom, e. g. working with parents, training enterprises or co-working of teachers within school development.
- **Reflexive observation (Reflecting):** Experience without reflection does not imply learning. It can be carried out individually or in groups.
- **Abstract concepts (Thinking):** Methods for gaining abstract concepts are lectures, seminars or the use of self-learning material with is followed by an application phase in school (deductive model). Abstract concepts can be just as well be acquired by the generalization of experience by reflective observation (inductive model).
- **Active testing (Doing):** Active testing implies the creative, adventurous and systematic planning of arrangements that supports learning. An active examination can be carried out individually or in groups.

Professionalization in EdUSchool is cyclic. The process can be viewed in the perspective of a learner or of a teacher supporting the learning of his students.

Step	Learning-Perspektive	Questions for learners	Teaching-Perspective	Questions for teachers
Competency expectations	Reflect competency expectations	What should I learn?	Set competency expectations	Which competencies should the learners gain?
Concrete Experience (Experiencing)	Gain concrete experience	How can I notice what is happening?	Provide concrete experience	How can we provide learners concrete experience as a basis for observation and reflection?
Reflective Observation (Reflecting)	Observe reflectively	What am I observing resp. what did I observe?	Facilitate reflective observation	How can we promote the reflection of learners from their experience?
Abstract Conceptualization (Thinking)	Form abstract concepts	What can we learn out of the observation?	Enable abstract conceptualization	How can we foster learners to integrate their observations in logically sound (scientific) theories?
Active Experimentation (Doing)	Experience actively	What does this learning mean for decisions and problem solving?	Encourage active experimentation	How can we encourage learners to use the meaning to decide and solve problems?

Table 4: EdUSchool Helix Professionalization

2.3 Helix III: The EdUSchool helix of school improvement

Within the discussion of the main activities of the University School, the importance of institutional learning was strengthened by introducing the third helix of school improvement. Professionalization and school improvement are two complementary perspectives.

Step	Professionalization (Helix II)	School improvement (Helix III)
Target groups (primary)	<ul style="list-style-type: none"> ▪ Students in pre-service teacher education ▪ Teachers (in School) ▪ Lectures at the university 	<ul style="list-style-type: none"> ▪ School ▪ University
Mode of learning	<ul style="list-style-type: none"> ▪ Individual Learning 	<ul style="list-style-type: none"> ▪ Organizational Learning
Mode of change	<ul style="list-style-type: none"> ▪ Learning 	<ul style="list-style-type: none"> ▪ Organizational development
Reference theories	<ul style="list-style-type: none"> ▪ Learning (especially experiential learning) ▪ ... 	<ul style="list-style-type: none"> ▪ Change Management ▪ Organizational Management ▪ School improvement ▪ ...

Table 5: Professionalization & school improvement

One can understand the process of school improvement, according to the model of Hirsh and Crow (2018).

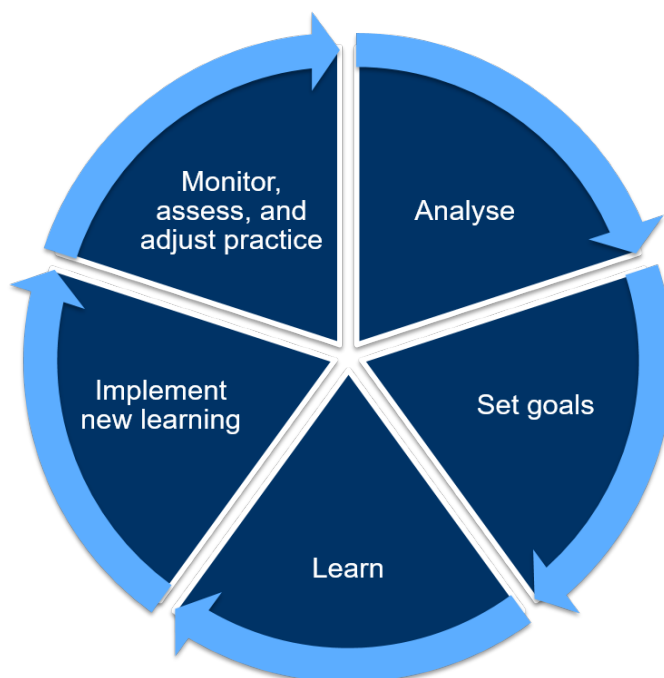


Figure 5: EduSchool helix III: EdUSchool helix of school improvement

Each step of the school improvement is connected with questions.

Step	Description	Question
Analyse data	Examine challenges	Which are the central challenges we are facing?
Set goals	Identify shared goals	What are our shared goals and values that guide our school improvement?
Learn	Gain new knowledge and skills; examine assumptions, aspirations, and beliefs	How can we learn?
Implement new learning	Implement new learning	How can we implement the central insights we made?
Monitor, assess, and adjust practice	Use evidence to assess and refine implementation and impact	What did we achieve?

Table 6: EdUSchool Helix of School improvement

3 Good Practice collection

3.1 Overview of Good Practice collection

The collection of Good Practices does not – as already explained – reflect a complete consideration of the University School Concepts, but only constitutes the selection of individual process steps with distinctive characteristics of the different University School Concepts. Table 7 provides an overview of the Good Practice descriptions identified in the EdUSchool project.

University School Concept	Abbr.	Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba1	Module Business Didactics	Professionalization, Research & Development, School improvement	
	Ba2	Concept of observation (hospitations) during the school internship	Professionalization	Gain concrete experience, Reflective observation
	Ba3	ePortfolio – Guided reflections during the University Schools programme	Professionalization	
	Ba4	Institutionalization of cooperation within the University School programme	School improvement	Analyse
	Ba5	In-service teacher training	Professionalization (Staff), School improvement	
	Ba6	Initiation of Research Projects for School Improvement	R&D	
	Ba7	Identify topics for student' thesis	R&D	Identify educational challenge
MUNI (Brno)	Br1	Student Reception in the Elementary School	Professionalization (staff & students)	Gain concrete experience
	Br2	Analysis of Case Studies	Professionalization	Gain concrete experience
	Br3	Monitoring of School Life	Professionalization	Gain concrete experience
FAU (Nuremberg)	Nu1	Define research fields	R&D	Identify educational challenges
	Nu2	Working with textbook & Assignments	Professionalization	Abstract Conceptualisation,

				Gain concrete experience with reflective observation
	Nu3	Appraisal session	Professionalization	Abstract Conceptualization
	Nu4	Exploring the field of activity of teachers outside the classroom	Professionalization	Gain concrete experience
	Nu5	Reflection on individual professional development	Professionalization	Reflective Observation
	Nu6	Reflection of the team process	Professionalization	Reflective Observation
	Nu7	Gain several insights	Professionalization	Gain concrete experience
	Nu8	Gradual introduction and competence development	Professionalization	Gain concrete experience
(NTNU) Trondheim	Tr1	School-based professional courses for teachers in University Schools	Professionalization (Staff), School Improvement	
	Tr2	Selection process for University Schools	School Improvement	
	Tr3	Facilitation process for development of collaborative R&D-projects in the University School	R&D	Identify educational challenge and plan research
	Tr4	“Open-day” at the university school	R&D	Identify educational challenge and plan research

Table 7: General overview of Good Practices

3.2 Good Practice descriptions

The following overviews reconstruct the Good Practice Collection (section 3.1) alongside the EdUSchool triple helix model. Therefore, the multiple-cases (University School concept of the OFU in Bamberg (BaX), University School concept of the MUNI in Brno (BrX), University School concept of the FAU in Nuremberg (NuX), University School concept of the NTNU in Trondheim (TrX)) are arranged helical and thus embedded in a certain new order. That illustrates the range and the complexity of the certain idea of the diverse University Schools and – at the same time – prepares the ground for the forthcoming comparison of similarities and differences (section 4).

3.2.1 Good Practices of Research & Development

Good Practice Ba6: Research- and development projects for school improvement	
Good Practice (name)	Initiation of Research Projects for School Improvement
Short description	Scientists/Lecturers, members of the University Schools or students, identify challenges that could be subject to further studies at the University Schools. Subsequently, research gaps and research plans are elaborated at the University.
EdUSchool helix	Research and Development: All steps are necessary. However, it depends on the different R&D-projects, how is the extension of a step. For instance, collect data can be mentioned for a documentary analysis or also for the questionnaire.
Institution	University of Bamberg, University Schools
Status	Process revised many times
Action	<ul style="list-style-type: none"> As a result of observations, reflections of experiences or the reception of scientific literature and studies, organisational, operational, and educational challenges at schools can be identified. University members then elaborate on the research gap and set a research plan in cooperation with the University Schools. Both are to be described in a project proposal, which is then handed in at the local government. The project needs the approval of the respective local government officials before it can take place. Depending on the scope of the respective project, students might be involved in the research process or are responsible for the research (e.g. when they conduct a research at University Schools during their final thesis). After official approval, the projects in the University Schools can be carried out. The results of the research projects are then reflected to the schools and can be a starting point for change processes in schools and school improvement.
Consequences / impact	<ul style="list-style-type: none"> Professionalization of TE-students as far as they are involved in the research Hence, activities related to this helix can also affect the helixes of professionalization (of University School teachers) and school improvement.

	This depends on the research topic, the results, and schools willingness to adapt to the findings.
Conditions (barriers)	<ul style="list-style-type: none"> • Research projects at University Schools require governmental approval • Research projects require support from University Schools • Transfer of research results into University Schools is only possible if the schools and the University School teachers are open for developments and improvements, and if results are perceived as an improvement
Conditions (facilitators)	<ul style="list-style-type: none"> • Scientific communication of research processes, action and results for the target group of practitioners
Context	<ul style="list-style-type: none"> • Identification of educational challenges and research gaps • Official approval

Table 8: EdUSchool Good Practice “Research- and development projects for school improvement”

Good Practice Ba7: Identify topics for student’ thesis	
Good Practice (name)	Identify Topics for Students Research Projects
Short description	The local official who is responsible for vocational schools and the University Schools asks University School teachers to define research topics for student projects.
EdUSchool helix	Research and development: step “Identify educational challenge”
Institution	University of Bamberg, Officials of the local government, University Schools
Status	Process revised many times
Action	<ul style="list-style-type: none"> • Governmental official asks University School teachers for research topics for student research projects • University School teachers define research topics and send them back to the official • The governmental official collects all topics and send them to the University.
Consequences / impact	<ul style="list-style-type: none"> • As soon as TE-students are involved in the research process, the individual professionalization of the students is affected • Results of the students’ research can affect teachers’ professionalization and school improvement
Conditions (barriers)	<ul style="list-style-type: none"> • If University School teachers do not define research topics the further process cannot be initiated
Conditions (facilitators)	<ul style="list-style-type: none"> • University School teachers committed to the University School concept and TE students • University School teachers being aware of the potentials from students research projects for school improvement and improvements of the quality of teaching
Context	<ul style="list-style-type: none"> • Most relevant in this process is receiving adequate topics for research projects.

Table 9: EdUSchool Good Practice “Identify topics for student’ thesis”

Good Practice Nu1: Define research fields	
Good Practice (name)	Define research fields
Short description	Define R&D-field for student research groups that support school improvement
EdUSchool helix	R&D-helix: Identify educational challenges
Institution	FAU, University Schools
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ University requests schools to define research fields on issues that schools are currently dealing with ▪ Coordinate R&D-fields within the school: Mentors, Quality Management Teams / School improvement team, head teacher, school board ▪ Discussion with a university lecturer (e.g. If it is applicable, fulfills the requirement for research projects, fulfil the competency expectations R&D) ▪ Fixing the final list of R&D-fields ▪ Refinement of the research field through student groups with feedback from mentors and university representative
Consequences / impact	<ul style="list-style-type: none"> ▪ Students in pre-service teacher education gain experience with educational research and receive a necessary foundation for the application of educational research ▪ Schools can solve problems in the context of school improvement through the feedback of the results
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Research fields too extensive ▪ Problems in the (later) collection of data (e.g. Poor acceptance)
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Confidence ▪ Discreetness ▪ Openness ▪ Frequent meetings ▪ Routine
Context	<ul style="list-style-type: none"> ▪ Students have to be introduced to the application of research methods ▪ Students need feedback on the research process and research results

Table 10: EdUSchool Good Practice “Define research fields”

Good Practice Tr3: Facilitation process for development of collaborative R&D-projects in the University School.	
Good Practice (name)	Facilitation process for development of collaborative R&D-projects in the University School.
Short description	The goal of the process is to develop collaborative R&D projects, i.e. collaborative projects between researchers from the university and staff (teachers or other staff) from the University School, which, on the one hand, strengthens teacher education and, on the other, develops practice-relevant knowledge for the schools.
EdUSchool helix	R&D: Identify educational challenge and plan research
Institution	Charlottenlund secondary school and NTNU's teacher educations
Status	Accomplished 2019/2020, planned as part of annual wheel
Action	<p>Process phases:</p> <ol style="list-style-type: none"> 1. <i>Idea- and mapping-phase</i>, where actors from University School and university separately in developing ideas and proposals for R&D projects. These are gathered and summaries of the proposals are made at both the university and the University School. 2. <i>Connection phase</i> with various forms of facilitation to establish contact between actors from school and university. 3. <i>Application phase</i> where contact is established, and teachers and researchers cooperate to develop the R&D-proposals into applications. 4. The steering bodies of the University School cooperation process the applications. The applications that mostly meet the goals are allocated funds.
Consequences / impact	Increased collaborative research activity between university and University School where networks are expanded and strengthened. A large number of teachers and researchers coming from a wide range of professional communities are involved
Conditions (barriers)	<ul style="list-style-type: none"> • Intra-organizational barriers at university <ul style="list-style-type: none"> - Structural (organizational complexity) - Cultural (different professional communities) • Inter-organizational barriers between University School and university <ul style="list-style-type: none"> - Structural (schedules, resources) - Cultural (different goals and foci)
Conditions (facilitators)	<ul style="list-style-type: none"> • Thorough planning and anchoring among the partners. • Well-planned information phase. • Good access to facilitation resources (innovation-leader)
Context	In this first round, the university announced funding (NOK 1 million) to increase the scope of collaborative R&D in the University School. A facilitation process for the development of joint R&D was initiated to enable participation from all actors who interested actors at the University School and in all relevant teacher education environments at the university.

Table 11: EdUSchool Good Practice "Facilitation process for development of collaborative R&D-projects in the University School."

Step	Good Practice Tr4: “Open-day” at the University School
Good Practice (name)	“Open-day” at the University School
Short description	“Open-day” is an organized meeting-arena at the University School where teachers and leaders from the University Schools and teacher educators/researchers from the university are allowed to present R&D-ideas to each other. The aim is to establish contact for further collaboration and development of joint R&D projects.
EdUSchool helix	R&D: Identify educational challenge and plan research
Institution	Charlottenlund secondary school and NTNU’s teacher educations
Status	Accomplished 2019/2020, planned as part of annual wheel
Action	<p>Steps:</p> <ol style="list-style-type: none"> 1. <i>Idea- and mapping</i>, where actors from the University School and the university separately develop ideas and proposals for R&D projects. These are gathered, and summaries of the proposals are made at both the university and the University School. These overviews provide a basis for organizing “Open-day”. 2. “<i>Open-day</i>” is organized as a gallery-walk in two parts, where teacher educators/researchers from the university and teachers and leaders from us present their R&D ideas to each other in turn.
Consequences / impact	Teachers and leaders from us and teacher educators/researchers from the university are presented to and get to know each other's ideas. As a result, contacts for further collaboration on R&D project development are made.
Conditions (barriers)	<ul style="list-style-type: none"> • Challenging to motivate university employees to participate at “Open-day”. The reasons may be related to autonomy, prioritization, practice-based research is not regarded as a career-enhancing activity. • Information density and time scarcity at the “Open-day” can be challenging.
Conditions (facilitators)	<ul style="list-style-type: none"> • Well-planned idea- and mapping-phase. • Adequate and targeted information. • Face-to-face encounters help to establish contact.
Context	“Open-day” is part of the connection phase (phase 2) of “Facilitation process for the development of collaborative R&D-projects in the University School” (GP3).

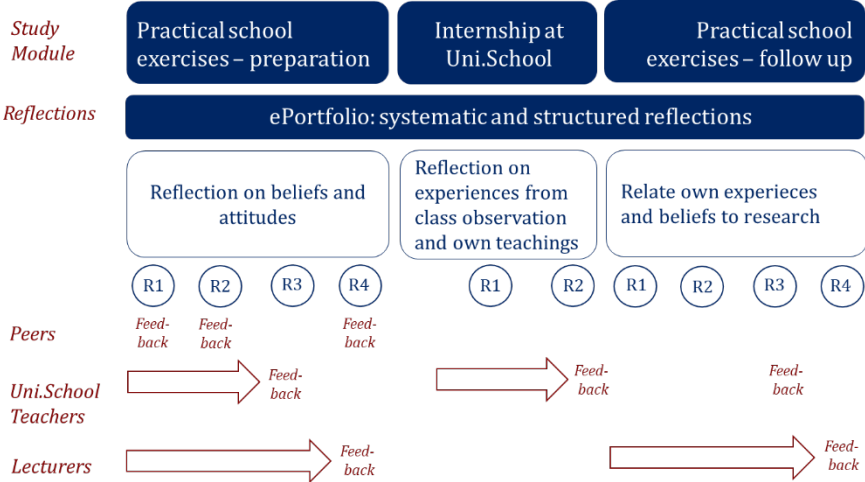
Table 12: EdUSchool Good Practice “Open-day at the University School”

3.2.2 Good Practices of Professionalization

Good Practice Ba2: Concept of observations (hospitations) during the school internship															
Good Practice (name)	Concept of observation during the school internship														
Short description	<p>During the practical training, the students observe 80 lessons served by experienced University School teachers. The teaching activities are recorded in their complexity – here in the form of complete lessons. The Bamberg Hospitation Concept, which was developed in cooperation with the University School teachers, goes beyond the classroom level and covers the range of fields of action of teachers at vocational schools. This is expressed in concrete terms in four areas of action (action fields) – class (lessons), subject area (course of occupation), school (organisation of school) and environment (stakeholders). The different types of teacher's action fields are also anchored in it with different teacher actions: 'teaching and educating', 'counselling and moderate', 'diagnose and assess', 'innovate, change and design' as well as 'manage and organise'. It is structured as a matrix, as can be seen in the following figure:</p> <table border="1"> <thead> <tr> <th></th> <th>Class (lessons)</th> <th>Subject area (course of occupation)</th> <th>School (Organisation of school)</th> <th>Environment (stakeholders)</th> </tr> </thead> <tbody> <tr> <td>Teaching and educating</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">75 % of the observation hours</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">25 % of the observation hours</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">25 % of the observation hours</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">25 % of the observation hours</td> </tr> <tr> <td>Counselling and moderate</td> </tr> <tr> <td>Diagnose and asses</td> </tr> <tr> <td>Innovate, change and design</td> </tr> <tr> <td>Manage and organise</td> </tr> </tbody> </table> <p>All in all, in the hospitation matrix, the current state of research of teacher professionalization is taken into account. For instance, being a teacher does not refer only on lessoning and teaching. It also implements classroom management, school organisation (change management) counselling and innovation.</p> <p>During the school internship, the University School teachers organise the internship hours for each student in the fields in the form of observation sheets. The mentoring University School teachers develop the observation sheets. The observation sheets cover the fields in the hospitation matrix.</p>		Class (lessons)	Subject area (course of occupation)	School (Organisation of school)	Environment (stakeholders)	Teaching and educating	75 % of the observation hours	25 % of the observation hours	25 % of the observation hours	25 % of the observation hours	Counselling and moderate	Diagnose and asses	Innovate, change and design	Manage and organise
	Class (lessons)	Subject area (course of occupation)	School (Organisation of school)	Environment (stakeholders)											
Teaching and educating	75 % of the observation hours	25 % of the observation hours	25 % of the observation hours	25 % of the observation hours											
Counselling and moderate															
Diagnose and asses															
Innovate, change and design															
Manage and organise															
EdUSchool helix	Professionalization: All action steps in the area professionalization are relevant. In detail, concrete experience, reflective observation as starting points from the perspective of TE students.														
Institution	University of Bamberg and University Schools, University lecturers and University School teachers														
Status	It was carried out several times and is extended with each semester by additional observation sheets.														

Action	<ul style="list-style-type: none"> • The hospitation matrix was developed together with the University School teachers (step: competence expectations) • In the internship, the students fill out the different hospitation sheets for the different fields (step: concrete experience). This could be in the classroom or meetings with other stakeholders (e.g. firms, other teachers). • Students discuss and reflect the experiences of the hospitation matrix with the University School teachers (step: reflexive observation) • Students reflect the experience as a part of the e-portfolio during the modules (step: abstract concepts).
Consequences / impact	<ul style="list-style-type: none"> • The concept of hospitation is intended to ensure that the core activities of teachers continue to be adequately represented. • In addition, the other areas of activity of teachers should already be taken into account in the school internship.
Conditions (barriers)	<ul style="list-style-type: none"> • Quality of the hospitation sheets • University School teachers need to create more hospitation sheets • To ensure that all University Schools have access to all the sheets developed, there must be a system for document exchange
Conditions (facilitators)	<ul style="list-style-type: none"> • Instruction to the students of the hospitation sheets as a useful tool • University School teachers as contact persons for the students during the internship have to approve and support the internship concept
Context	<ul style="list-style-type: none"> • The hospitation concept can only be implemented well if the teachers are committed and provide the students with different hospitation sheets during their internship. • In one way or another, there should be a control mechanism to ensure that the observation sheets are actually filled in.

Table 13: EdUSchool Good Practice “Concept of observations (hospitations) during the school internship”

	Good Practice Ba3: ePortfolio – Guided reflections during the University Schools programme
Good Practice (name)	ePortfolio – Guided reflections during the University Schools programme for teacher education students during the modules of practical school exercises – preparation and follow up
Short description	<p>Teacher education students at the department of business and human resource education are obliged to attend two modules of practical school exercises. These modules are based on each other. In between these modules, students take an internship at a University School.</p> <p>The learning objectives of the modules require a deeper understanding of processes in schools and interactions in lessons as well as a reflection of the students' own attitudes and beliefs. Therefore, a reflection concept has been developed that endures over the three parts. Hence, students create their own reflection portfolio and can track their learning progress and progress in their professional development. Furthermore, students receive short feedback on the individual reflection they hand in. Peers, University lecturers and University School teachers give feedback. With other words, the students learn through reflections the connection between theoretical/empirical knowledge from research (theory) and practical experience at the school (practice). The reflection on own experiences from classroom observations is embedded in the concept of hospitation during the internship at the University School.</p> 
EdUSchool helix	Professionalization: All steps of the in the area professionalization are relevant.
Institution	University of Bamberg and University Schools, University lecturers and University School teachers
Status	There are prior concepts for the reflection on which the new concept is based on. The new reflection concept is piloted for the first time.
Action	<ul style="list-style-type: none"> • University lectures and University School teachers developed the reflection concept. It is carried out by the University; however, with feedback sessions, also the University School teachers are involved. • Main actors within the concept are first, students, secondly, university lecturers, and thirdly, University School teachers • Students receive reflection questions and hand in their reflections

	<ul style="list-style-type: none"> • Afterwards students receive peer-feedback on their reflection and according to the scope of the reflection additional feedback from university lecturers or University School teachers • At first, students reflect their attitudes towards becoming teachers and beliefs on professionalism, “good” schools and teachings (this concerns the module practical school exercises – preparation). In the following, students take an internship at University Schools. Here, they attend at least 80 lessons of teaching (observation of classes) and give at least two lessons of their teaching. The concept of reflection aims at reflection of their teachings and experiences due to the observations. Furthermore, students are asked to relate their experiences to the research in the field to find their position as a professional teacher and a researcher.
Consequences / impact	<ul style="list-style-type: none"> • The reflection concept aims at fostering teacher education students’ professional development • Students learn to systematically reflect on their attitudes and beliefs, as well as on observations • Students learn to give and to take feedback
Conditions (barriers)	<ul style="list-style-type: none"> • Quality of students’ reflection • Students’ ability and engagement to write own reflections • Student’s ability and willingness to give feedback to others’ reflection • University School teachers and university lecturers time resources to give feedback
Conditions (facilitators)	<ul style="list-style-type: none"> • Giving concrete questions and instructions for both reflection and feedback • Highlight the importance of reflections and (to give and receive) feedback for one’s professional development
Context	<ul style="list-style-type: none"> • Create commitment of students and University School teachers to systematic reflections and feedback • Prepare students to be able to create reflections and give feedback

Table 14: EdUSchool Good Practice “ePortfolio – Guided reflections during the University Schools programme”

Good Practice Br2: Analysis of Case Studies	
Good Practice (name)	Analysis of Case Studies
Short description	Usually, a key point in training practice is the focus on didactic and pedagogic competences of the student. For this, the prescribed sittings-in on classes and independent work in classrooms (teaching) are used. The added value of practical training at this particular school is the attention to the development of students' social and organizational competences. The authorized teacher/mentor conducts interviews with students about selected cases of pupils and, as the case may be, their families. The mentor introduces the students to cases and authentic problems that do not have easy solutions and require special attention by teachers and school counselors (families that do not communicate, pupils with behavioral disorders, socially disadvantaged families, foreign language speakers, and so on).
EdUSchool helix	Professionalization-Helix: gain concrete experience It is concerned with the development of competences of students in teacher education programs. The concrete experience gained from the case analysis can be followed up by the observation in school classes and by forming abstract concepts about the concrete pupils' difficulties.
Institution	Elementary school, Brno, CZ (6-15)
Status	Implemented and revised.
Action	<p>These activities aim to allow students to develop not only their didactic competences in direct work with a class, but to increase their sensitivity to individual student cases too. It is based on these steps:</p> <ul style="list-style-type: none"> • As a part of his/her practice, a student spends several hours or days (based on the length of his/her practice) in so-called School Counseling Department, where he is familiarized with the organization, purpose and plans of this organization. Counseling employees acquaint students with counseling legislative, obligatory documentation and record keeping of students with special educational needs. • The mentor supervising the practice of a student chooses one or more student cases from his class which demand special attention from the teacher. These cases mostly concern students with special educational needs. All ethical rules are adhered to and highlighted. • Case interpretation of the student usually encompasses: <ul style="list-style-type: none"> • Only the framework diagnostic conclusion, description of student's issues • Recommended supporting measures, individual plans etc. • Cooperation of teachers within school, role of school counselors in the given case • Dynamics of the development (what is or is not functional) • Cooperation with parents and their role • Evaluation, prospects of development • Mentor and counseling employees help the student to incorporate supporting measures into a specific class. They acquaint him/her with specific options but let him creatively think about the ways to adjust the class to the given student too. • While teaching, a student himself/herself manifests and provides recommended supporting measures for the specific student. He/She learns how to cooperate with the teaching assistant if he/she is present.

	<ul style="list-style-type: none"> • In other cases, a student himself/herself tries the role of teaching assistant and focuses on the students with special educational needs to whom the supporting measures apply.
Consequences / impact	<ul style="list-style-type: none"> • Students realize it is necessary to differentiate teaching based on the needs of individual students • Students acquaint themselves with a wide range of special educational needs of students and with supporting measures during their lessons. • Students become more sensitive to differences between students and to the ethics of teacher's work. • Students have the opportunity to see the students from the perspective of counselors and understand cooperation between teachers and counselors better.
Conditions (barriers)	<ul style="list-style-type: none"> • The length of a student's practice limits this experience. The work with case interpretations demands time. • During some periods of the school year, counseling employees have much workload and cannot devote their time to the students. • It is important to emphasize the ethics of the work; student does not have the option to look directly into the student's documentation. Only the information that is available to all teachers is available to him too.
Conditions (facilitators)	<ul style="list-style-type: none"> • In some schools, there is a so-called enlarged School Counseling Department, in which school psychologist and/or school's teaching assistant (who do not have any direct teaching classes) work too. They usually have more time to devote to students on their practice. • Thanks to so-called supporting measures, there is a teaching assistant in some of the classes. Students have the opportunity to familiarize with his work.
Context	<ul style="list-style-type: none"> • In the Czech Republic, every school needs to have School's counseling department established, in which works a guidance counselor and a school's prevention specialist. These are trained teachers with direct classes. Beside them, in the enlarged models of School Counseling Department can work a school psychologist and schools special and social pedagogue. These are not burdened with direct classes. • Czech schools are inclusive and there are students with special educational needs registered in every school. • To students with lesser forms of risks applies to the first level of supporting measures, when the school (teachers and counselors) create the Plan of Educational (Pedagogic) Support. To students with more severe risks apply levels from 2 to 5 of supporting measures, when the teachers and counselors (with the help of external counseling subjects) create the Individual Study Plan. For manifesting these supporting measures, schools gain special financial support.

Table 15: EdUSchool Good Practice "Analysis of Case Studies"

Good Practice Br3: Monitoring of School Life	
Good Practice (name)	Monitoring of School Life
Short description	In addition to supporting the development of the students in didactics and working with the class, special efforts are made to prepare the students for life at school. These efforts are based on the conviction that the adaptation of a new teacher is facilitated by his or her knowledge of the school as an organization and the processes taking place there. In this manner, the risk of the initial shock and teachers' early leaving is reduced. Therefore, the aim of the specific efforts of this faculty school is to support students' social and organizational competencies (besides didactic and pedagogic ones). At this school, students can learn about school life and the teaching profession's context outside the classroom from a different point of view.
EdUSchool helix	Professionalization-Helix: gain concrete experience It is concerned with the development of competences of students in teacher's education programs.
Institution	Elementary school, Brno, CZ (6-15)
Status	Implemented and revised.
Action	<p>In order for students to be better prepared for situations they may encounter outside the classroom during a typical day in the school, they are invited to get involved in the life of the school. It is a way of support for their social and organizational competences.</p> <p>The activities and work the students involve in are the following (depending on the type of events currently taking place in the school):</p> <ul style="list-style-type: none"> • Students work with teachers on some of the current projects. They are assigned to teams, participate in project meetings and perform particular tasks (such as in a project named Velvet Revolution for which they were supposed to create a quiz for pupils). • Students participate in meetings of educational boards and other groups of teachers. • Students carry out a part of their practical training in the School Club, conduct activities with pupils and help them do their homework. Together with teachers, they perform the supervising during breaks in corridors and the canteen. • As an accompaniment, students participate in excursions and visits to theatres or cinemas so that they have opportunities to learn about every aspect of care for pupils outside the school. • Students of primary teaching perform a part of their training at an affiliated nursery school so that they can better understand the development aspects and the cooperation between teachers at nursery schools and basic schools. • Students have the opportunity to participate in parent meetings and communicate with parents of younger pupils who are brought to the school or the nursery school and taken home. <ul style="list-style-type: none"> • A small part of practical training is spent on administration tasks (shadowing selected teachers) so that students can learn about the duties that teachers have in terms of administration (cooperating in the creation of teaching materials, learning the rules of GDPR, shredding documents, helping to fill in the class register, and so on). It is a way for students to realize that the job requires much more than just direct work in the classroom and that a day of a teacher can be very long.

	<ul style="list-style-type: none"> • The student reflects on his/her remarks and experience with the mentor or the head-teacher and with the leader of practical training at MU. Reflection at the basic school is usually individual or conducted in small groups of practicing students; at MU, reflection is usually carried out in larger groups (depending on the faculty the student comes from). • Some students take notes about their experience in a prescribed portfolio. Those who do not have a prescribed portfolio keep a diary in which they write notes to be reflected on with the mentor or the head-teacher.
Consequences / impact	<ul style="list-style-type: none"> • Practical training in such an extensive form is important for both students and the school. • Students get to know the life of the school and their profession from various perspectives. They get familiar with the rights and duties of teachers and encounter non-standard situations they have to solve; therefore, they improve their social and organizational competences. • Obviously, students realize the negative aspects of teaching as well, which helps them decide whether they want to pursue this profession. • Students have the opportunity to realize how fast the schedule of a school is, with teachers continuously working even during breaks and solving problems as they go along. Therefore, the leadership of practical training is, in fact, not only a matter of one person (the mentor) or a small group of people but an opportunity for most teachers to get involved in. • On the other hand, teachers receive capable assistants and have the opportunity to get to know the students in person as well. • It is frequent that students who complete their training practice cooperate with the school in the future or that school leaders recommend them to other schools. Students get a better understanding of school life operation.
Conditions (barriers)	<ul style="list-style-type: none"> • If the students have short-term practices, they usually cannot undergo it in such scope. Sometimes, it is problematic for students to coordinate their lessons at the faculty with the practice at the school, especially if they irregularly spend whole days at school doing different activities. • Attention has to be paid to the creation of the weekly plan as depending on the possibilities and plans of the school for the particular week. It is essential to maintain a balance between direct work in classrooms and recognition of other aspects of the profession and the life of the school utilizing various events. Of course, the development of didactic competences, which is essential, must not be neglected. Therefore, if practical training is approached like this, it is difficult to organize. • The mentor or coordinator has to know all the events taking place in a particular week and cooperate with every teacher. • He/she may encounter low motivation or even unwillingness of some colleagues to engage the student in activities that have already been planned. Some teachers do not want to admit students for practical training at all, as the matter, it is connected with certain administration load and responsibility for the student and his/her acting. • The need for time flexibility of students and their good insurance, which is anchored in the contract between MU and the school, can be limiting. • Another risk is the fact that students involved in many activities and proceedings can listen to negative comments of teachers, often witnessing the overload and stress of some of them and facing resistance or hyper-protectiveness of parents. All this can demotivate them.

Conditions (facilitators)	<ul style="list-style-type: none"> • Students usually like to familiarize themselves with the life of the school and communicate with other teachers and non-teaching staff, besides the mentor and leaders. • Also usually, teachers are interested in cooperation with students and use their assistance in various situations. • An important help is from the coordinator of practical training at the basic school, which helps teachers do the administration and keep records of training and the weekly plans. • Masaryk University makes this type of training more feasible through flexible contracts and negotiation about particular requirements. • Teachers can apply beforehand for help from the student undergoing the practice when they are planning some special activity in which cooperation could benefit all sides (practice students, students, teacher...). • Students welcome cooperation with young practice students and their presence at different school activities.
Context	<ul style="list-style-type: none"> • An important condition for the success of practices focused in this manner especially is good communication between the school and the faculty, which sends the students to do the practice. The school needs to know beforehand when the student is about to undergo the practice and what are his time possibilities. This is because the school can identify or plan beforehand activities in which the student can then participate. • All teachers are informed on meetings about the students, who are currently or are going to be doing the practice in the school in the future and they are all invited to cooperate.

Table 16: EdUSchool Good Practice “Monitoring of School Life”

Good Practice Nu2: Working with textbook & Assignments	
Good Practice (name)	Working with textbook & Assignments
Short description	The students read and summarize the textbook to gain theoretical knowledge. The students reflect on attached assignments to reveal the difficulties and to critically evaluate and deepen their experiences
EdUSchool helix	Professionalization-helix: Abstract conceptualisation (working with textbook & Concrete experience with reflective observation (working with assignments)
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ Module supervisor at the university creates the textbook and attached assignments according to the competence expectations ▪ Students receive the textbook ▪ Students summarize each chapter of the textbook weekly ▪ Students internalize the contents of the textbook ▪ The students work on the work assignments defined by the module supervisor ▪ The students then reflect in writing, either in a group or individually, on the processing of individual work assignments
Consequences / impact	<ul style="list-style-type: none"> ▪ Students learn to summarize complex facts in a limited period of time, acquire them and thus prepare for the exam. ▪ Students learn to disclose and reflect on difficulties and concerns. They also gain a deeper understanding of the work tasks. ▪ Students compare the theory anchored in the textbook with their practical experience in working on the work assignments. ▪ Lecturers at the university adapt the work and reflection tasks as well as the textbook contents.
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Competences of reception and summarization are not yet pronounced ▪ The main focus in the textbook is unclear to students ▪ Lack of understanding of the work assignment ▪ Unconcrete reflection assignments
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Competencies for the reception and summarizing of scientific texts ▪ Experience ▪ Reflectivity ▪ Knowledge about the correctness of the work assignment
Context	<ul style="list-style-type: none"> ▪ Detailed description of the work assignment ▪ Concrete information on time and scope ▪ Specification of concrete evaluation criteria ▪ Feedback from tandem partner and chair ▪ Time resources by the students ▪ Supporting the completion of tasks through a comprehensive explanation of the concepts in the textbook ▪ Creation of internal school possibilities for implementing the work assignments ▪ Supporting tools and tips for reflection

Table 17: EdUSchool Good Practice “Working with textbook & Assignments”

Good Practice Nu3: Appraisal session	
Good Practice (name)	Appraisal session
Short description	Comparison of the findings from the textbook analysis with practical experience and the results of student work in classroom sessions
EdUSchool helix	Professionalization-helix: Abstract Conceptualization (Thinking)
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ Students meet regularly for a systematic examination and review with the module supervisor and mentors to disclose their understanding of the textbook content and compare it with practical experience in schools ▪ The students present their work products and analyze their approach and the results ▪ The students, module supervisors and mentors provide feedback on the work products
Consequences / impact	<ul style="list-style-type: none"> ▪ In-depth reflection, classification and joint comparison of the contents of the textbook with practical experience and the conclusions of the discussion ▪ Students: Restructuring of what has been learned ▪ University: Adaptation of work assignments and textbook based on feedback
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Lack of preparation for the meetings ▪ Lack of willingness to present work products
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Small discussion groups ▪ Open discussion culture ▪ Lived error culture ▪ Fixed deadlines and availability of work products at meetings
Context	<ul style="list-style-type: none"> ▪ Regular, institutionalized meetings in small discussion groups

Table 18: EdUSchool Good Practice “Appraisal session”

Good Practice Nu4: Exploring the field of activity of teachers outside the classroom	
Good Practice (name)	Exploring the field of activity of teachers outside the classroom
Short description	The students explore the school environment for a more comprehensive picture of the teaching profession
EdUSchool helix	Professionalization-helix: Concrete Experience (Experiencing)
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ Module supervisor at the university and mentors jointly coordinates the potential fields and the time frame of the school explorations ▪ Mentors and mentees make an interest-based selection of potential fields of exploration ▪ Mentors provide access to the potential fields ▪ Students explore the school environment ▪ Students document the experiences in a protocol
Consequences / impact	<ul style="list-style-type: none"> ▪ Students: Acquisition of more comprehensive insight into the tasks of a teacher ▪ School: Contact of other teachers (besides mentors) with students and the UniSchool concept
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Internal school partners are not available for school exploration ▪ Scheduling bottlenecks ▪ Lack of accordance of student interests with the school's exploration possibilities
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Openness ▪ Accessibility ▪ Trust
Context	<ul style="list-style-type: none"> ▪ Guidance on how to prepare for the sessions ▪ Supporting tools for documentation and reflection ▪ Internal school network of mentors and teachers

Table 19: EdUSchool Good Practice “Exploring the field of activity of teachers outside the classroom”

Good Practice Nu5: Reflection on individual professional development	
Good Practice (name)	Reflection on individual professional development
Short description	The students compare the targeted competence increase in their professional development with that achieved during the semester.
EdUSchool helix	Professionalization-helix: Reflective Observation (Reflecting)
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ Module supervisor develops a 360-degree assessment tool, the so-called SAFARI sheet and other reflection instruments for the professional development of students ▪ At the beginning of the semester, students prioritize certain areas of competence on the SAFARI self-development questionnaire and set themselves concrete goals in writing ▪ Students disclose priorities and goals to their peers and mentor ▪ Students keep a didactic diary during the semester and receive feedback on their entries from their tandem partner ▪ Students carry out a self-assessment based on the SAFARI questionnaire and compare it with the written assessment of peer and mentor ▪ Students conduct feedback discussions with peer and mentor ▪ Students undertake a final reflection on the prioritized and self-chosen areas of competence in professional development.
Consequences / impact	<ul style="list-style-type: none"> ▪ Students strengthen their self-competence and their general reflection skills in their professional development ▪ Students systematically classify what they have experienced and gain knowledge ▪ Students and mentors gain experience in giving and receiving feedback
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Lack of openness to the instruments and objectives of reflection ▪ Feedback from the mentor and/or peer incomprehensible ▪ Implementation of the selected areas of competence and objectives not because of internal school restrictions ▪ Observability of the gain in knowledge or competence by third parties not given
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Openness ▪ Trust ▪ Feedback rules ▪ Reflectivity ▪ Competence in taking and giving feedback ▪ Experience
Context	<ul style="list-style-type: none"> ▪ Creation of internal school opportunities to gather experience ▪ Supporting tools and tips for reflection ▪ Available time for reflection and feedback ▪ A digital exchange platform for sharing written statements

Table 20: EdUSchool Good Practice “Reflection on individual professional development”

Good Practice Nu6: Reflection of the team process	
Good Practice (name)	Reflection of the team process
Short description	The students regularly reflect on teamwork with the help of various reflection tools.
EdUSchool helix	Professionalization-helix: Reflective Observation (Reflecting)
Institution	FAU
Status	Revised several times
Action	<ul style="list-style-type: none"> ▪ Students write a team contract with the help of a tool. The students can also record the distribution of the work assignments in this contract. ▪ Students use a so-called "team traffic light" to anonymously signal to each other every week whether they are satisfied with the performance or behavior of the other team members. The team traffic light is intended to reveal potential team conflicts at an early stage. ▪ In critical cases, students seek a joint discussion (with the mentor or the person responsible for the module). ▪ Students reflect in writing on teamwork twice a semester regarding products and processes. For this, they also consider the team contract. ▪ At the end of the semester, a written balance sheet of the teamwork is drawn up.
Consequences / impact	<ul style="list-style-type: none"> ▪ Students learn to reflect on their teamwork with the help of tools. ▪ Students adapt their teamwork if necessary.
Conditions (barriers)	<ul style="list-style-type: none"> ▪ Lack of openness to the instruments and objectives of reflection ▪ Feedback from the peer incomprehensible ▪ Tools for the specific case too unspecific
Conditions (facilitators)	<ul style="list-style-type: none"> ▪ Openness ▪ Trust ▪ Feedback rules ▪ Reflectivity ▪ Competence in taking and giving feedback ▪ Experience
Context	<ul style="list-style-type: none"> ▪ Students meet regularly ▪ Students work together for the completion of tasks ▪ Supporting tools and tips for reflection ▪ Available time for reflection and feedback

Table 21: EdUSchool Good Practice "Reflection of the team process"

Good Practice Nu7: Gain several insights	
Good Practice (name)	Gain insights into different schools, professions and working methods
Short description	The students gain experience in different schools (different school cultures, professional groups) with different mentors (different teaching styles) in alternating group constellations (cooperation with other students).
EdUSchool helix	Professionalization-helix: Concrete Experience
Institution	FAU & University Schools
Status	revised several times
Action	<ul style="list-style-type: none"> • The students are assigned to schools, mentors and student group (about five students) by the people in charge at the university • The students visit a different University Schools once a week for half a school year in order to analyze the lessons of their mentor and to gain their own teaching experience etc. • The students are assigned to a permanent mentor who changes at the end of the semester. During this time, the students get to know at least two different teaching styles of their mentors. In some cases, it is possible to analyze teaching in special classes/occupations/secondary subjects respectively with other teachers • The students work on many assignments together within their student group (approx. 5 students); this group changes when students transfer to another school.
Consequences / impact	<ul style="list-style-type: none"> • Students: Collecting experiences in different schools and training occupations with the possibility of comparing them and drawing conclusions for later professionalization. • Students: Intensive introduction to the different working methods of the mentors with the possibility of weighing up the strengths and weaknesses of the impressions gathered; conclusions can be drawn for later teaching • Students: collecting and reflecting experiences in teamwork with a changing group of students, which increases the probability of positive and negative experiences • Students, mentors, schools: communication of the students' different impressions within the group and towards the mentors with the effect to trigger cross-school reflection processes
Conditions (barriers)	<ul style="list-style-type: none"> • Change of schools, mentors, student groups not possible due to bottlenecks (e.g. personnel; time restrictions) • Lack of openness of the students for gathering new impressions • Reflectivity not distinct
Conditions (facilitators)	<ul style="list-style-type: none"> • Location of students based on priorities, but concerning the composition of desired groups. In this approach, students are confronted with different working styles/impressions. • Social competence of the students is available • Long periods (1x per week for one semester each) allow intensive insights
Context	<ul style="list-style-type: none"> • Different University Schools available • University Schools are located near the university • Different mentors available

	<ul style="list-style-type: none"> • Allocation takes place centrally • Change (school, mentor, students) is priced in
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Table 22: EdUSchool Template for Good Practice “Gain several insights”

Good Practice Nu8: Gradually and increasingly introduction	
Good Practice (name)	Gradual competence development and assumption of responsibility for lesson preparation, implementation and reflection
Short description	Students are gradually introduced to planning, implementation, reflecting and revising lessons and increasingly take on their teaching responsibilities.
EdUSchool helix	Professionalization-helix: Concrete Experience
Institution	FAU & University Schools
Status	revised several times
Action	<ul style="list-style-type: none"> • Students: initially, only classroom analysis is carried out - guided by a textbook, tools and mentors. • Mentor & University: Discussion of the results and impressions of the teaching analyses • Students: Planning and analysis of individual teaching sequences or materials (e.g. worksheet) with the help of the textbook, tools and mentor • Students: Adoption of individual teaching sequences (e.g. starting lessons; securing results at the end of a lesson) and reflection within the group together with the mentor and with the professor at the university • Students: Planning, implementation, reflection and revision of extensive teaching units in the second half of the module
Consequences / impact	<ul style="list-style-type: none"> • A step-by-step introduction to teaching experiences, acclimatization and avoidance of overstraining at the beginning of the module • Assumption of responsibility by students is instructed • Sensitize students and mentors to selected, smaller teaching elements and treat them intensively
Conditions (barriers)	<ul style="list-style-type: none"> • Lack of openness of students to new experiences • The danger of getting lost in too many small work assignments • Lack of implementation possibilities at schools
Conditions (facilitators)	<ul style="list-style-type: none"> • Support through tools and textbook • Training and awareness-raising by mentors • Experience • Reflectivity • Knowledge about the correctness of the work assignment
Context	<ul style="list-style-type: none"> • Detailed time and content planning of the work packages • Coordinated work orders • Offer the opportunity to gain experience in the classroom • Supporting tools and tips for reflection • Continuous and long-term participation of students in a class

Table 23: EdUSchool Template for Good Practice “Gradually and increasingly introduction”

3.2.3 Good Practices of School Improvement

Good Practice Ba4: Institutionalization of cooperation within the University School programme	
Good Practice (name)	Institutionalised meetings to manage the cooperation with the University School teachers
Short description	A core element of the University School concept in Bamberg is the institutionalised meetings of university members, who are responsible for the University School concept, with the University School teachers of the University Schools. The meetings take place at the university two times a year. The aim is the organisation of the cooperation between the university school lecturers and the University School teachers regarding all parts of the University School concept.
EdUSchool helix	School improvement (covers all steps of the helix; starting point: analyse) It could also be a point for TE programme improvement, for instance, if University School teachers give recommendations for modules.
Institution	University of Bamberg and University Schools, University lecturers and University School teachers
Status	Revised several times
Action	<ul style="list-style-type: none"> As the actual state, the stakeholders analyse together the last semester of the University School cooperation, what worked well out and what worked out less well. E.g. all University Schools report from the last internship (step: analyse) Based on the analysis of the actual state, we discuss and set further goals for the next semesters (step: set goals) Together we develop concrete measures for the achievement of the objectives (step: learn) The implementation is realized in the schools or the seminars and is not an explicit part of the meeting In connection with the analysis of the actual state, we monitor and evaluate the last measures and the realized implementation (step: monitor, assess, and adjust practice)
Consequences / impact	<ul style="list-style-type: none"> Improvement of the University School concept in Bamberg as a whole and the cooperation between University School teachers and university lecturers Analysation of the activities within the cooperation in a retro perspective view Organisation of the further development of the cooperation and goal setting for further steps Gain informal insights in the daily school life routines and the internships at the University Schools
Conditions (barriers)	<ul style="list-style-type: none"> Absence of University School teachers at the meetings, so that binding steps in further development cannot be discussed The targets discussed at the meeting have to be implemented afterwards in the University Schools or the seminars at the university
Conditions (facilitators)	<ul style="list-style-type: none"> Open atmosphere for critic from both sights of the cooperation – university and University Schools

	<ul style="list-style-type: none"> University School teachers are committed and bring in their ideas
Context	<ul style="list-style-type: none"> All steps of the helix are equally important.

Table 24: EdUSchool Good Practice “Institutionalization of cooperation within the University School programme”

Good Practice Ba5: In-service teacher training	
Good Practice (name)	In-service teacher training for teachers from regular schools (not University Schools) organised within the University School cooperation by University and University Schools.
Short description	<p>Lecturers at the university and University School teachers initiate together in-service training courses for other teachers from non-University Schools. Contents are the cooperatively developed products for teaching at vocational schools, which have been developed within the University School concept in Bamberg. The training courses last over a certain period with several sessions in which the participants are accompanied by the university lecturers and the University School teachers.</p> <ul style="list-style-type: none"> In different seminars students develop teaching material for vocational schools Sometimes students use this material for lesson sequences (e. g. in the internship), sometimes the University School teachers use it for their lessons In order to increase the usefulness of these developed materials, they will be presented, discussed and further developed at specialised in-service training courses with teachers from non-University Schools.
EdUSchool helix	Professionalization of teachers (all steps) and School improvement for non-University Schools (all steps)
Institution	University lecturers, University School teachers AND other teachers from non-University Schools.
Status	planned
Action	<ul style="list-style-type: none"> The participating teachers get to know the teaching materials in a first session of the training course (helix II step: competency expectations). <ul style="list-style-type: none"> The teaching materials are analysed and discussed together (helix III step: analyse). In addition, goals for individual implementation in the classroom by the teachers are set jointly (helix III step: set goals). This is followed by a decentralised phase. <ul style="list-style-type: none"> Teachers plan the integration into their own lessons (helix III step: learn). Teaching materials can be adapted and individualized. In several counselling sessions with the university lecturers and the University School teachers the participants can reflect their plans in a practical and scientific perspective (helix II step: reflective observation) and make further development of the lessons. Afterwards, the teachers conduct the lessons and gain concrete experience in the classroom (helix II step: concrete experience). At the same time, this also corresponds to step “implement new learning” in the sense of school improvement.

	<ul style="list-style-type: none"> • In further sessions of the training course, the experiences can be classified and reflected against the background of abstract, scientific concepts (helix II, step: abstract concepts). <ul style="list-style-type: none"> ○ In this context, an evaluation of the lesson sequence must also be carried out in order to generate recommendations for action for future implementations (helix III step: monitor, assess and adjust practice). • In a concluding session, the findings and experiences can be used for further development work (helix II step: active testing).
Consequences / impact	<ul style="list-style-type: none"> • The University School concept is becoming better known among teachers • Other teachers can benefit from the teaching materials developed within the University School concept. <ul style="list-style-type: none"> ○ They are supported in their development and implementation on the one hand by the practical experience of University School teachers ○ On the other hand, the scientific support provided by the university staff can help to integrate them into general concepts, reflect them and to gain a new understanding of teaching work. • University School teachers and University lecturers as organizers professionalize themselves.
Conditions (barriers)	<ul style="list-style-type: none"> • The in-service training have to be accepted from the government as official in-service training to ensure that teachers receive regular credit for their training • No interest from teachers of non-University Schools
Conditions (facilitators)	<ul style="list-style-type: none"> • Support from the government (e. g. acceptance of the courses) • Government promotion of the training courses • University School teachers have to be committed and convinced of the University School concept and its benefits
Context	<ul style="list-style-type: none"> • The step “Competence expectations” of Professionalization-helix is realized before the actual implementation of the in-service training course. • The willingness of the University School teachers to participate as organizers is a fundamental condition for the joint event • The acceptance of the government as official in-service training is necessary for successful implementation

Table 25: EdUSchool Good Practice “In-service teacher training”

Good Practice Br1: Student Reception in the Elementary School	
Good Practice (name)	Student Reception in the Elementary School
Short description	Teachers at the primary school introduce students to their internship at the school with the help of a differentiated program. The process of admission involves a headmaster, a teacher who is responsible for organizing the practice, and a mentor (the school's teacher who supervises the practice of a particular student).
EdUSchool helix	Professionalization-helix: concrete experience <ul style="list-style-type: none"> • development of competences of headmasters and teachers in schools where the practice take place & • development of professional competences of students
Institution	Elementary school, Brno, CZ (6-15)
Status	Implemented and revised
Action	<p>At the school, one teacher is entrusted with the role of the coordinator of practical training and arranges for the contact with universities, revision of contracts and communication with mentors. In addition, the coordinator has to know the electronic information system of Masaryk University (if the results of practical training and its evaluation are recorded electronically). Some students have to keep their training portfolio (a requirement imposed by some MU faculties).</p> <ul style="list-style-type: none"> • <u>Step one</u>: Submission of all documents required as necessary for the completion of practical training. These documents are listed in the contract and annexes between the school and the MU faculty in question. Usually, this means a framework contract signed by the faculty and the school, a plan including the scope of training (requirements of the faculty) and an evaluation form to be filled out (confirmation about the completion of the training if not communicated online through MU's information system). These documents can differ as for content; in this respect, MU faculties are autonomous. • <u>Step two</u>: Interview among head-teacher, student and the coordinator of practical training (authorized teacher). School leader receives each student in person and talks to him/her about his/her motivation for teaching, the needs, ideas and plans for practical training as well as motivation for the choice of this particular faculty school for practical training. According to this, a teacher is proposed as a mentor. The student is reassured that the door of the head-teacher's office is always open. The coordinator continuously observes the cooperation between the student and the mentor and helps the mentor cope with administrative requirements. • <u>Step three</u>: the coordinator and the mentor introduce the student briefly to the operation of the school, informing him/her about the occupational safety and conveniences (such as where personal belongings can be deposited, where coffee is made, where a copy machine is placed, and so on). <p>In more detail, accompanied by the mentor, the student is introduced to the working environment and gets a workplace and a computer for his/her use. Then, the mentor and the student work together on a more detailed idea about practical training: sittings-in, a study of school documents, independent work in classrooms and other activities in the school. The focus on other activities is of crucial importance for the development of social and organizational competences of the student. A weekly plan of practical training is created.</p>

<p>Consequences / impact</p>	<ul style="list-style-type: none"> • Student's practice is not only an issue of one mentor and one student. Student is familiarized with the whole school and has the opportunity to acquaint himself/herself with all teachers and the functioning of the school as a whole. The organization of practices is an open and transparent process. • Work of mentors is coordinated with possible mutual sharing, which is governed by the coordinator of practices. • Mentors are not directly burdened with administration and communication with the university; they only assess the student and participate in potential educational and reflective seminars at university. • Practice is focused in a way to accommodate both to student's needs, university needs and the school's needs (see picture below). <div data-bbox="603 728 1295 1115" data-label="Diagram"> <p>The diagram consists of three overlapping blue ovals. The top oval is labeled 'Faculty requirements'. The bottom-left oval is labeled 'Students' needs'. The bottom-right oval is labeled 'Faculty school possibilities and needs'. The central area where all three ovals overlap is shaded a darker blue.</p> </div> <ul style="list-style-type: none"> • In case of difficulties, students always have the option to contact not only just the mentor, but the coordinator of practices or the headmaster of the school. • Headmaster has feedback concerning the practices taking place in his/her school. • Headmasters and teachers learn, how to understand the needs of students and beginning teachers more intensively. Students get a better understanding of school life operation.
<p>Conditions (barriers)</p>	<ul style="list-style-type: none"> • Students sometimes are not able to articulate their needs clearly; that circumstance may appear during the process of the practice. In the case of short-term practices (10 days), students identify their real needs only at the end of their practices. • Students are usually assigned a mentor and his/her supervision might not suit the student. In some cases, on the request of the student, however, the student can be assigned a specific mentor. • Neither mentors nor organizers have relief from direct teaching classes. For this work, they are given a bonus based on the possibilities within the school's budget. • Organizers of practices have to be in close contact with the relevant faculty – sometimes, close contact with university employees is not successfully maintained. Some faculties do not communicate sufficiently and do not expressly state their expectations from practices. • Different faculties have different demands and different systems used for the evidence of practices. The coordinator must know these.

	<ul style="list-style-type: none"> • In many cases, the teacher-mentor has to change his teaching plans and adjust them to the needs of the students and of the faculty. A problem appears especially in cases when the practice of the student is not announced in advance or when the student can devote to practices only in specific days or half-days in a week (when it is not a long-term continuous practice).
Conditions (facilitators)	<ul style="list-style-type: none"> • When wording the contracts, faculties can rely on consultations with MU's legal section. • Headmaster can give a bonus from his budget to the coordinator of practices and the mentor. • Mentors and coordinators can be partially rewarded from the project's resources if the relevant faculty organizes a project focused on the development of practices. • In The Czech Republic, there are accredited courses for mentor's training, which the headmaster can cover from the school's budget. • As a consequence of new accreditations for study programs at universities in The Czech Republic, several development projects are in progress, which supports development practices not only financially, but also with methodology and seminars for mentors. • Students gratefully accept the interest in their actual needs.
Context	<p>The Czech Republic has recently witnessed increased pressure on the scope and quality of practical training in teacher education, but higher education institutions (faculties) have a large autonomy in how to organize, conduct and document students' practical training. Cooperation with faculty schools also differs in terms of proximity. Faculty schools also differ in terms of the quality of care and support they provide for students. Since the school hosts students for practical training from various universities and faculties, the requirements and obligatory documents vary. Therefore, teachers must flexibly harmonize the requirements of specific faculties, the needs of students, and their own possibilities and needs. For this, it is necessary to:</p> <ul style="list-style-type: none"> • properly communicate and negotiate with the institution the student comes from and know the necessary documents • allow for time for communication with the student at the very beginning of practical training, listen to his/her needs and offer options • have good knowledge about activities currently taking place in the school • have trained mentor teachers and a trained coordinator of practical training • provide mentor teachers with favorable work conditions (time, place, remuneration...)

Table 26: EdUSchool Good Practice "Student Reception in the Elementary School"

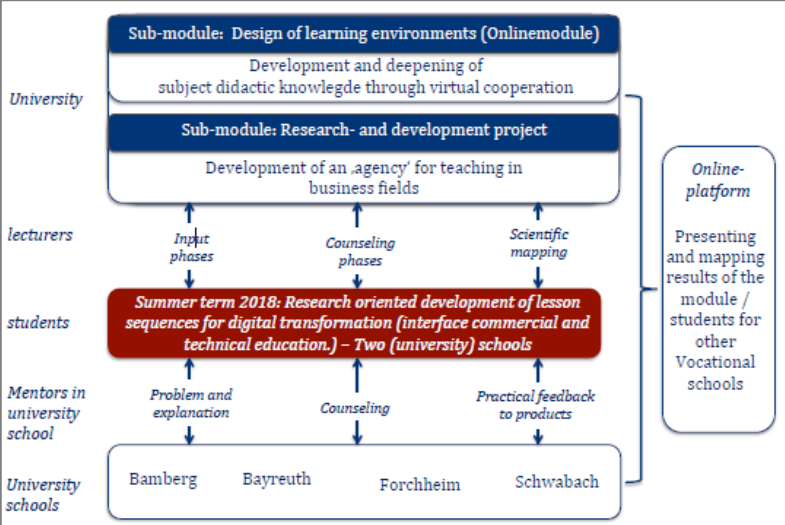
Good Practice Tr1: School-based professional courses for teachers in University Schools	
Good Practice (name)	School-based professional courses for teachers in University Schools.
Short description	Compulsory school-based collective professional courses, in mentoring and R&D (15 ects), for all teachers at University Schools. This is a two-part part-time study over one year; 1. term's theme is mentoring (7,5 ects) and 2. term's theme is action-based R&D (7,5 ects). The entire course takes place in teachers' working-hours at the actual University School. The course qualifies for assignment as a school-based mentor.
EdUSchool helix	Professionalization and school improvement in initial phase of University School collaboration.
Institution	Charlottenlund secondary school and NTNU
Status	Implemented 2016 at Charlottenlund secondary school (implemented at the other University Schools in USSiT in 2016 and 2017/2018).
Action	<ol style="list-style-type: none"> 1. Negotiation on content and implementation design between the academic environment at NTNU and the University School(s). 2. Development of study plan (NTNU) 3. Development of implementation plan (collaborative) 4. Implementation (collaborative) 5. Group-based examination
Consequences / impact	<ul style="list-style-type: none"> • Increased formal competence for the individual teacher - increased professionalization as a result. • Increased collective competence for the school-organization -increased collaboration capacity as a result
Conditions (barriers)	Resistance from teacher unions and individual teachers about increased workload could have occurred. This was avoided because of good organizational anchoring, and the course took place during work time.
Conditions (facilitators)	Individual and collective motivation at the University School is aimed at developing new knowledge and collaboration with the university and teacher-education. Common agreement. Mutual respect.
Context	Joint agreement between academic environment and University School about study plan and implementation design. Flexibility regarding facilitation and resource redistribution in the involved organizations (school and university).

Table 27: EdUSchool Good Practice "School-based professional courses for teachers in University Schools"

Good Practice Tr2: Selection process for University Schools	
Good Practice (name)	Selection process for University Schools
Short description	The choice of University Schools was made through application based on a set of predefined criteria.
EdUSchool helix	Organizational development and school improvement
Institution	Trondheim Municipality, Sør-Trøndelag County and NTNU
Status	The process was implemented in 2015 and 2017
Action	<ol style="list-style-type: none"> 1. Development of criteria based on mutual agreement between the parties 2. Call sent to all secondary schools in the municipality 3. Workshop for the applicant schools 4. Application and anchoring process in schools 5. Selection of University School based on mutual agreement between the parties (NTNU, Trondheim municipality and Trøndelag county).
Consequences / impact	<ul style="list-style-type: none"> • Highly motivated staff (teachers and leaders) at the University Schools. • School organization with capacity to carry out the assignment as University School.
Conditions (barriers)	<ul style="list-style-type: none"> • Different interests among partners (university and municipality) • Imprecise selection criteria
Conditions (facilitators)	<ul style="list-style-type: none"> • Mutual agreement on selection criteria • Many schools interested in becoming University Schools
Context	<p>Criteria:</p> <ul style="list-style-type: none"> • Competence in the school's teaching staff (number of teachers with masters, supervisor, vocational subjects, experience from collaboration with the university and teacher education) • Brief description of the student group (number, diversity, gender, socio-economic conditions, geographical and more, primary education points) • Brief description of the school's position / status of key focus (learning environment, completion in upper secondary school, secondary education, cooperation between secondary school / upper secondary school) • Challenges? Describe the school's experience in research and development work • How are teachers, other staff, union representatives, students, and parents involved in the application process? • How does the school plan to envisage the University School collaboration?

Table 28: EdUSchool Good Practice "Selection process for University Schools"

3.2.4 Unspecified Good Practices

Step	Good Practice Ba1: Module Business Didactics
Good Practice (name)	Master-Module "Business Didactics" in the study programme
Short description	<p>The module "Business Didactics" promotes the academic skills and attitudes of students in a way that enables them to design learning environments in a research-oriented way. For this, the module is divided into two parts: (1) The course "Design of complex Learning Environments" provides students with a basic orientation in subject-didactic knowledge (i.e. via glossary articles, literature review) for the design of learning environments in Business and Economics. It is entirely an online module. (2) The course "Research- and Development project" fostering the skills by working on concrete didactical problems of vocational education and training. The students are confronted with a real, subject-didactic challenge of the University Schools (e.g. development of teaching material for the building of value; teaching materials for the digitization in vocational lessons). By doing this, the students get counselling by the University lecturers and the mentoring University School teachers from a HE point of view, the idea is, that the students learn to relate scientific and methodological knowledge as well as practical experience to fulfil the didactical problem situation. This also includes the reflection of antinomic relationships and requirements of the teaching profession together with University School teachers and lecturers.</p>  <p>The diagram illustrates the module's structure and interactions. It is organized into layers: University, lecturers, students, and Mentors in university school. The University layer includes two sub-modules: 'Design of learning environments (Onlinemodule)' and 'Research- and development project'. The lecturers layer involves 'Input phases', 'Counseling phases', and 'Scientific mapping'. The students layer focuses on 'Summer term 2018: Research oriented development of lesson sequences for digital transformation (interface commercial and technical education.) - Two (university) schools'. The Mentors in university school layer includes 'Problem and explanation', 'Counseling', and 'Practical feedback to products'. The University schools layer lists four locations: Bamberg, Bayreuth, Forchheim, and Schwabach. An 'Online-platform' box on the right indicates 'Presenting and mapping results of the module / students for other Vocational schools'.</p>
EdUSchool helix	<p>The module represents different steps in the three areas of professionalization, school improvement and research and development.</p> <p>Professionalization: It depends on the individual or group development process in the module, which sequence of the steps represents the starting point. The module follows the competence-based education approach (e.g. Mulder 2019). With this in mind, the students pass a so-called "complete action". Nevertheless, one group maybe starts concrete experience and another group starts with abstract conceptualisation.</p>

	<p>Research and development: The module follows a research-based learning approach. The students are learning through research. This is compatible with the competence-based education approach, which represent learning and research a “complete action”. However, regarding the module the students pass, the steps identify an educational challenge, theoretical and empirical grounding, if necessary collect data and plan implementation.</p> <p>School improvement: The final results of the students are implemented by the students and University School teachers in an extra-curricular matter. This represents a contribution to school improvement, especially the step new learning.</p>
Institution	University of Bamberg and University Schools, University lecturers and University School teachers
Status	implemented and revision based on the evaluation after every term
Action	<p>Most of the steps are described in the prior box. However, it can be carved out:</p> <ul style="list-style-type: none"> • Planning the module together with University School teachers (helix II step: competence expectations, helix III step: analyse and set goals). University School teachers identify real challenges for vocational education lessons (helix I step: identify educational challenge) • Different input phases at the beginning of the module • Presentation of the research and development project of the module by the University School teachers and explanation of the problem (helix II step: competence expectations) • Different counselling phases for the students by university lecturers and University School teachers (helix II step: reflexive observation and abstract conceptualization) • Students analyse the situation and plan the process of problem solving (helix I step: plan research; helix II step: concrete experience; helix III step: analyse and set goals) • Students develop for example learning environments in groups (helix I step: collect, analyse and interpret data; helix II step: concrete experience; helix III step: learn) <ul style="list-style-type: none"> ○ University lecturers counsel the students about the scientific and theoretical elaboration and give feedback from a scientific perspective ○ University School teachers use their practical experience in class to counsel the students and provide feedback from a practical perspective ○ University School teachers and university lecturers support the reflection of antinomic relationships in the teaching profession and situational interactions between teachers and pupils • Presentation of the results at the University Schools (helix I step: transfer; helix III steps: set goals and learn) • On an extra-curricular basis, students implement the developed learning design patterns in class (helix I steps: implement and evaluate the action plan; helix II step: active testing; helix III: implement new learning) • University School teachers evaluate afterwards the benefit from the developed learning environments for example (helix III step: monitor, asses and adjust practice)

Consequences / impact	<ul style="list-style-type: none"> • The students have a basic theoretical-conceptual and empirically founded knowledge about the design possibilities of learning environments and their effectiveness in economic contexts. • With the online module, it is assured, that the students reconstruct the current scientific knowledge (e.g. literature review for a new subject-didactic research study) during the problem solving process • Students can use existing curricular conditions due to their systematic and, based on this analysis, to create independent and cooperative learning environments against the background of the didactic condition and design fields, implement and evaluate them. This also includes the design of learning situations and the corresponding didactic and teaching materials. In doing so, they deepen the handling of different conceptual approaches for the design of learning environments and can use them to educational science, and didactic references. • Students can place their research and development work in the context of (e.g. didactic annual planning) and relationships between micro- and macro-didactic requirements. • The students are able to make their didactic decisions against the background of theoretical, conceptual and empirical approaches, to develop their position against the background of their socialisation and learn to reflect on practical teaching experiences.
Conditions (barriers)	<ul style="list-style-type: none"> • Quality of University School teacher’s counselling • Availability of University School teachers • Quality of students’ working products and questions • Understanding problems / reconstruction challenges for the students regarding the subject-didactic problem • Technical barriers (i.e. skype ...) • Sometimes University School teachers are not sufficiently informed about technical and didactical opportunities and possibilities at their schools – sometimes also university lecturers are not sufficiently informed about the conditions at the University Schools
Conditions (facilitators)	<ul style="list-style-type: none"> • Open atmosphere • Mutual esteem • University Schools give real problems of their daily life routine • Students get support from the University lecturers as well as from the University School teachers. Only one part of support would deform the results, because of missing interlocking of theoretical and practical perspective
Context	<ul style="list-style-type: none"> • University School teachers have to be involved in the whole module from the beginning • Explicit time slots in the planning of the module for the different activities • Committed University School teachers who are interested in the exchange

Table 29: EdUSchool Good Practice “Didactics of Economics”

4 Similarities and differences of "Good Practices" - Helix internal view

4.1 Procedure: Comparison on Helix Internal View

The examination of the Good Practices reveals that individual processes can be found in similar ways or with similar intentions in the different University School concepts, but they differ in specific points. The following comparison of selected Good Practices is intended to provide a deeper understanding of the processes described and their specific features. The comparison can be based on various selection parameters. For us, a useful and in-depth comparison of the individual processes only makes sense in family-like structures. Therefore, the following comparisons are limited to the different helixes, partly also to the embedded steps. The comparison is intended not only to compare individual Good Practices, but also to systematize them. The analysis is carried out along some established categories of the survey (objectives, approach and actors involved, conditions of execution) and categories inductively extracted from the data material.

We deliberately refrain from a detailed comparison of the different University School concepts with each other. The Good Practices only represent small sections of the overall concept. It seems neither appropriate nor methodologically acceptable to compare the different University School concepts on this basis with each other. Even a comparison of the selection of the Good Practices would only allow a gentle conclusion to be drawn about the focus and orientation of the different University School concepts.

4.2 Comparison of Good Practices within Helix "R&D"

Six descriptions of the Good Practice collection are assigned to Helix Research & Development (Ba1, Ba6, Ba7, Nu1, Tr3, Tr4).

University School Concept		Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba1	Module Business Didactics	Professionalization, Research & Development, School improvement	

	Ba6	Initiation of Research Projects for School Improvement	R&D	
	Ba7	Identify topics for student' thesis	R&D	Identify educational challenge
FAU (Nuremberg)	Nu1	Define research fields	R&D	Identify educational challenges
NTNU (Trondheim)	Tr3	Facilitation process for development of collaborative R&D-projects in the University School	R&D	Identify educational challenge and plan research
	Tr4	"Open-day" at the University School	R&D	Identify educational challenge and plan research

Table 30: Good Practice assigned to Helix Research & Development

Due to the fact that the majority of these Good Practice descriptions can be assigned to the Helix step "Identify educational challenge", the comparison focuses on this process step. This step describes, "[t]he starting point of the social process is the identification of a problem in a school. The determination of an educational challenge is a process of negotiation between different stakeholders" (section 2.1). Good Practice Ba1 has a different basic orientation; hence, this section takes a more in-depth look at the helix of professionalization (section 2.2).

The descriptions of the Good Practices for the Helix step "Identify educational challenge" show the following similarities and differences:

Objective: In their basic classification, the research projects Ba6, Ba7, Nu1, Tr3, Tr4 described in the Good Practice Collection are mainly empirical research projects. This distinguishes the research projects from process Ba1, in which conceptual work is the main focus. The research projects to be defined in Ba6, Ba7, Nu1, Tr3, Tr4 have very different key themes and objectives: Research for the purpose of teacher training or, more generally, research itself (closing research gaps), research for the purpose of school development, research for the purpose of professionalizing students (research-based learning, master's thesis, conducting one's own research project). What unites them is the fact that research is carried out *inside* and *around* schools. The surveys themselves also take place in the research field of "University School". In many cases, the objective pursued by the research project has a decisive influence on the design of the concrete definition process (e.g. organization, approval, financing, actors involved, topics dealt with, anticipated work results).

Approach and actors involved: All research processes described in the Good Practices are initiated. Actors at the university usually who consult their research partners in the University Schools provide the impetus. In one Good Practice case described, this task is taken over by the government (Ba7). The definition of research topics is always done in a cooperative process. On the one hand, the school actors are asked for initial topic suggestions (Ba7, Nu1, Tr3, Tr4), on the other hand, the topics result from research gaps identified in literature research or by observation (Ba6, Tr3, Tr4). The topics are regular topics of current interest to schools. Representatives of the university (mostly professorship holders or staff) and representatives of the University Schools (headmasters, teachers, mentors in the University School concept) are involved in the definition of topics. If the government is involved in the topic definition process, representatives of the government take over the role of representatives of the university (Ba7). It is notable that students are only involved in the initial topic definition process in exceptional cases, even if they subsequently work on the topics independently (Ba6, Ba7, Nu1). In one case, students (together with their mentor and university staff) carry out a subsequent re-definition of the topic (Nu1). In some of the described processes, subsequent research is carried out exclusively by the students (Ba1, Ba7, Nu1), in cooperation with or without support of the school stakeholders. Other research projects take place without student participation by university staff, partly together with teachers from University Schools (Ba6, Tr3, Tr4). In other research projects, research is carried out in cooperation between students, academic representatives and teaching staff of the University Schools (Ba6).

The results of the described Good Practices for the R&D step "Identify educational challenge" differ in form and complexity. If financial resources are to be granted or approvals granted, the results tend to require more comprehensive processing. The results are (lists of) topics to be specified (Nu1, Ba7), prepared papers that require approval (Ba6) or presentations of the initial ideas in the form of a gallery walk to win research partners and supporters for the respective ideas (Tr4).

Conditions of execution: The Good Practices in the step "Identify educational challenge" are subject to conditions that are both conducive and inhibiting; these conditions vary from case to case. Questions of approval (Ba6) and financing of the research projects (Tr3, Tr4) have a restrictive and limiting effect – but these do not affect all research projects in the same way. Furthermore, the research partners and their close cooperation affect the success or failure of the process.

4.3 Comparison of processes within Helix “Professionalization”

In the helix Professionalization, there are 15 descriptions of the Good Practice collection (Ba1, Ba2, Ba3, Ba5, Br1, Br2, Br3, Nu2, Nu3, Nu4, Nu5, Nu6, Nu7, Nu8, Tr1). Based on the high number of examples it can be deduced that professionalisation has significant importance in the University School Concepts. Within the allocation to the helix "professionalization", however, a fundamental separation with regard to the persons addressed is required: The majority of the Good Practices described are aimed at professionalizing students (Ba1, Ba2, Ba3, Br2, Br3, Nu2, Nu3, Nu4, Nu5, Nu6, Nu7, Nu8), while the remaining activities describe Good Practices for professionalizing teachers (Ba5, Br1, Tr1) or both (Br1). The latter Good Practices are processed and compared in the context of school improvement through personnel development. The Good Practices compared below concerning the Helix “Professionalization” relate exclusively to the target group of student teachers.

For the comparison of the Good Practices, they are arranged in the helix steps. Some Good Practices can be assigned to the step "Gain Concrete Experiences", others to the step "Reflective Observation". The step "Gain Concrete Experiences" describes processes of the "real world experience", whereby these experiences might be collected inside or outside the classroom and form the basis for reflection (section 2.2). The descriptions of Good Practices for the Helix step "Gain Concrete Experiences" can, in turn, be subdivided into exploratory activities and conceptual activities for the professionalization of student teachers. The step "Reflective Observation" serves the "reflection of the real world experience". Learning success without cognitive reflection is not possible (section 2.2).

4.3.1 Helix “Professionalization”: Comparison in step "Gain Concrete Experiences" with a focus on exploratory activities

In the following, the Good Practices of the Helix step **"Gain Concrete Experiences" with focus on exploratory activities** (Ba2, Br3, Nu4, Nu7) are compared on their similarities and differences.

University School Concept		Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba2	Concept of observation (hospitations) during the school internship	Professionalization	Gain concrete experience, Reflective observation

	Ba3	ePortfolio – Guided reflections during the University Schools programme	Professionalization	
FAU (Nuremberg)	Nu4	Exploring the field of activity of teachers outside the classroom	Professionalization	Gain concrete experience
	Nu7	Gain several insights	Professionalization	Gain concrete experience

Table 31: Good Practice assigned to Helix Professionalization - "Gain Concrete Experiences" with focus on exploratory activities

Objective: A significant part of the Good Practices on "Gain Concrete Experiences" (focus: exploratory activities) describes situations respectively activities in which students gain experience by observing and exploring at the University School (inside and outside the classroom) (Ba2, Br3, Nu4). It should be emphasized that three University School locations record approaches to gathering experiences outside the classroom in their Good Practices, which are also structured similarly (Ba2, Br3, Nu4). Depending on the field of experience – inside and outside the classroom – the objectives of the explorations differ. The classroom observations should provide (diverse) insights into the core activities of teachers (Ba2, Br3, Nu7). The students will gain a more comprehensive insight into the various fields of activity of the teacher (Br3, Nu4). These experiences are also intended to prevent a later "practice shock" (Br3).

Approach and actors involved: The procedure for defining the exploration options differs depending on whether the explorations are viewed inside or outside the classroom. The Good Practices for the out-of-classroom explorations are mostly consistent in their approach. In a joint agreement, the responsible persons at the university and the University School mentors carry out a basic limitation or definition of potential exploratory situations (Ba2, Nu4). In the Good Practice description Ba2, this is explicitly aligned with defined exploration fields. On-site, the school actors, together with the students, make the final decision as to which explorations are carried out, based on their interests and by the school's possibilities (Br3, Nu4). This is one of the reasons why the concrete experiences to be gathered, especially outside the classroom, differ considerably. The students pass through the school explorations, reflect and document their experiences, for example, in the form of a diary or exploration protocol (Ba2, Br3, Nu4).

The organization of the observations in the classroom is to be distinguished from the organization of the explorations outside the classroom. The classroom observations take place either blocked (Ba2, Br3) or continuously over a longer period (Nu7). The organization of the

classroom analyses points out differences in the Good Practices. The organization of the observations of the Good Practice description Ba2 is carried out together with the explorations outside the classroom (75 percent of the 80 scheduled hours). In deviation from this, the classroom observations in the Good Practice description Nu7 are planned separately from the explorations outside the classrooms. In consultation with the University Schools, those responsible persons/mentors at the university plan that groups of students (approx. 5 people) analyze their mentor's lessons once a week for half a school year. After half a year, the mentor and the student group change so that the students can gain new experience at another University School.

The school stakeholders (mentors and teachers or people with whom the explorations take place), the students and the university staff are involved in the definition of the school explorations. The subsequent exploration (and reflection) is carried out either together in the student group or alone.

Conditions of execution: The selection of concrete activities in all Good Practices depends on the school's possibilities or offers, so that the concrete implementation conditions are also oriented towards and vary with these. The scope of the explorations also varies: In Good Practice Ba2, 80 hours are explicitly planned for the observations, in Good Practice Nu7 the scope of the weekly classroom analysis is 4 hours, which are supplemented by the additional explorations outside the classroom (Nu4), in Good Practice Br3 the possibilities of the explorations are adjusted to the total duration of the students' stay (short-term and long-term practices). In two of the three Good Practices, the students are supported in carrying out the explorations or the targeted analysis by means of observation sheets (Ba2) or observation sheets (Nu7). The explorations outside the classroom are dependent in all Good Practices on the cooperation of the actors at the University School. Success factors for this are the networking and open communication of the school actors among themselves and with the university.

4.3.2 Helix Professionalization: Comparison in step "Gain Concrete Experiences" with focus on conceptual activities as distinct from analysis of existing material

In the following, the Good Practices of the Helix step "**Gain Concrete Experiences**" with the **focus on conceptual activities** (Ba1, Nu2, Nu8) are compared with regard to their similarities

and differences. These Good Practices also form a counterpart to the Good Practice Br2, which **focuses on the analysis of existing material.**

University School Concept		Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba1	Module Business Didactics	Professionalization, Research & Development, School improvement	
MUNI (Brno)	Br2	Analysis of Case Studies	Professionalization	Gain concrete experience
FAU (Nuremberg)	Nu2	Working with textbook & Assignments	Professionalization	Abstract Conceptualisation, Concrete experience with reflective observation
	Nu8	Gradual introduction and competence development	Professionalization	Gain concrete experience

Table 32: Good Practice assigned to Helix Professionalization - "Gain Concrete Experiences" with focus on conceptual activities & analysis of existing material

Objectives: The Good Practices contain three descriptions which see the pre-service professionalization of students as an experience in the conception of teaching materials or the processing of tasks of learning through research (Ba1, Nu2, Nu8). The contents of the Good Practices Nu2 and Nu8 complement each other. The Good Practice descriptions show apparent differences in the objectives. Good Practice Ba1 aims at designing comprehensive material for solving real-world problems for vocational education lessons and thus enabling learning through conceptual research. Students should acquire a basic theoretical-conceptual and empirically-based knowledge of the design possibilities of learning environments and their effectiveness in economic contexts (Ba1). Good Practices Nu8 (and Nu3), on the other hand, describe a stepwise introduction of students to the planning, implementation, reflection and revision of teaching and the associated development of ever-larger teaching sequences. These work assignments are supplemented by further assignments, which are dedicated, for example, to develop class rules or defining learning outcomes. This procedure is intended to protect students from initial overburdening and at the same time focus on smaller, otherwise possibly little-noticed particularities of classroom development. In contrast, Good Practice Br2 deals with existing authentic problem cases of students whose treatment or solution requires special attention by teachers and school advisors. In this way, students should be sensitized to the specific difficulties of the students and not focus exclusively on their competence development in the pedagogical-didactical field.

Approach and actors involved: Not only the objectives but also the approach of the Good Practices differ. In Good Practice Ba1, the problem to be worked on is presented to the students by the university teacher. The practical problem was identified in consultation between the university lecturer and the University School teacher. In Good Practice Nu8, the students receive the tasks through a comprehensive collection of tasks and regulations. The Good Practices include the handling of tasks in group work, in each case in coordination with mentors and university teachers, as well as the final presentation and submission of the results (Ba1, Nu3, Nu8). The analysis of the pupil case (Br2) is to be distinguished from this: there, the students receive specific training in the so-called “School Counseling Department” before they receive a case study from their mentor for problem solving. The measures developed for this student are then implemented in classrooms. For this purpose, the student slips into the role of a teaching assistant and provides the student with targeted support.

The students are significantly involved in the concrete processing and thus the gathering of concrete experience. The conceptual activities (Ba1, Nu8) are mostly carried out jointly in student groups; the analysis of the case study (Br2) is carried out by a student. The university teachers provide support and University School teachers who, on the one hand, set up the initial topic and on the other hand provide support during the process.

Conditions of execution: Students are supported in all Good Practices with materials, in one case by the contents of the textbook and detailed work instructions (Nu2, Nu8), in the other case by an online module and discussions of the intermediate results (Ba1). In the analysis of the student case (Br2), the students receive a comprehensive induction in the School Counseling Department. In addition, the university and/or school actors instruct and accompany the students.

4.3.3 Helix Professionalization: Comparison in step "Reflective Observation"

In the following, the Good Practices of the Helix step "**Reflective Observation**" (Ba3, Nu5, Nu6) are compared with regard to their similarities and differences. In addition, the process Nu3 can be supplemented. Nevertheless, reflective processes can also take place in the course of other Good Practices.

University School Concept		Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba3	ePortfolio – Guided reflections during the	Professionalization	

		University Schools programme		
FAU (Nuremberg)	Nu3	Appraisal session	Professionalization	Abstract Conceptualization
	Nu5	Reflection on individual professional development	Professionalization	Reflective Observation
	Nu6	Reflection of the team process	Professionalization	Reflective Observation

Table 33: Good Practice assigned to Helix Professionalization - "Reflective Observation"

Objective: Good Practices Ba3, Nu5 and Nu6 describe differentiated and more comprehensive concepts of reflection. Good Practices Ba3 and Nu5 focus on reflection causes and processes that are dedicated to individual reflection. Good Practice Nu6 deals with a reflection process for teamwork in a complementary but also in a delimiting way. Good Practices for individual reflection reveal broadly similar goals: Students should learn to reflect systematically on their own attitudes, convictions and competence growth as well as observations made at University Schools. Furthermore, they learn to give and take feedback (Ba3, Nu5). This differs from the objectives of the Good Practice description Nu6, which focuses on the reflection of student teamwork in the University School concept.

Approach and actors involved: In detail, the Good Practices differ in the concrete procedure. Nevertheless, the Good Practices to individual reflection have parallels: In Good Practice Ba3, students create their reflection portfolio and can thus track their learning progress and progress in their professional development. In contrast, in Good Practice Nu5 students are guided in their ability to reflect by a 360-degree assessment tool. Students can also add their categories that are particularly important to them. Both Good Practices for individual reflection provide for several points in time for reflection: At the beginning or before attending University School, students reflect on their starting position (e.g. their attitude towards the teaching profession, convictions about professionalism, good schools, good teaching, assessment of their competences) (Ba3, Nu5). While and after the first attempts at teaching or at the end of their time at the University School, further reflections follow in order to process the experiences and sort out the increase in competence (Ba3, Nu5). In Good Practice Nu5, accompanying reflection events are also called for during the stay at the University School. In both Good Practices (Ba3, Nu5), students receive, in addition to self-reflection, an external assessment from peers and university teachers; Good Practice Ba3 also supplements feedback from the university lecturer. The procedure for reflecting on cooperation among students, which is processed in Good Practice Nu6, is to be distinguished from this. It differs fundamentally from the Good Practices for individual reflection. The students reflect on their cooperation twice a

semester with the help of the self-created team contract. The reflection focuses, among other things, on the processes and products of cooperation. In addition, the students take stock of the cooperation at the end of their university education.

Conditions of execution: Instructional materials support the reflection. On the one hand, these are concrete questions (Ba3) or tools (Nu5, Nu6); on the other hand, students receive individual feedback from their peers and mentors. The concretely determined time slots facilitate the embedding of the reflection in the overall University School concept.

4.4 Comparison of processes within Helix "School Improvement"

The Helix "School Improvement" emphasizes the importance of the organizational or institutional learning of schools through its status as a University School. In its basic orientation, school improvement describes a consciously designed, revolutionary change of school (Pilz, 2018, p. 136). The project partners locate five descriptions of the Good Practice Collection in the helix "School Improvement" (Tr1, Tr2, Ba1, Ba4, Ba5), whereby the particular assignment to a specific process step of the helix is not possible respectively missing in most cases. It should be noted that the Good Practices were described from the perspective of university actors. Consequently, often the described Good Practices can trigger school improvement. In the following comparison of Good Practices, a further description of the professionalization of teachers and head teachers of University Schools is included (Br1), which was not explicitly marked as a school improvement process.

University School Concept		Name of the Good Practice description	Helix	Concrete step in the helix
OFU (Bamberg)	Ba1	Module Business Didactics	Professionalization, Research & Development, School improvement	
	Ba4	Institutionalization of cooperation within the University School programme	School improvement	Analyse
	Ba5	In-service teacher training	Professionalization (Staff), School improvement	
MUNI (Brno)	Br1	Student Reception in the Elementary School	Professionalization (staff & students)	Gain concrete experience
NTNU (Trondheim)	Tr1	School-based professional courses for teachers in University Schools	Professionalization (Staff), School Improvement	

	Tr2	Selection process for University Schools	School Improvement	
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Table 34: Good Practice assigned to Helix School Improvement

In a holistic view, school improvement comprises the constituent parts of human resources development, teaching development and organizational development (Rolff, 2013, p. 19). The Good Practices in school improvement can be assigned to these different starting points. Three Good Practices describe human resources development processes in the sense of professionalization of teaching staff at University Schools (Br1, Tr1) and non-University Schools (Ba5). Two of the Good Practices can also be assigned to school improvement via teaching development (Ba1, Ba5). Two other Good Practices are most likely to address aspects of organizational development (Tr2, Ba4).

The detailed comparison of the Good Practices with regard to similarities and differences is carried out within the three constituent parts of school improvement, because each of them has its focus.

4.4.1 Comparison of Good Practices with a focus on human resources development

The following explanations are limited to a comparison of the Good Practices that express the best way school improvement in terms of human resources development (Ba5, Br1, Tr1).

The Good Practices with a focus on human resources development show differences in orientation, which can be classified fundamentally as *formal* and *informal* learning. Two of the Good Practices describe a process of professionalization of teachers in formal courses (Ba5, Tr1), another Good Practice leads to the professionalization of teachers by collecting experiences about informal learning at the workplace school (Br1). Formal learning takes place in courses that serve as a qualification of teachers. In one case, these courses are already being used to qualify teachers as mentors of the University School (Tr1); in the other case, they are to serve in the future as in-service training modules for teachers without University School connection (Ba5). The Good Practice example of informal learning, on the other hand, aims to sharpen the counselling and support competence of the coordinator for practical training and the headmaster at a University School in dealing with student teachers by gathering practical experience (Br1).

Objective: The content and objectives of personnel development differ in the Good Practices: Informal competence development is based on experiential learning in practical activities, i.e. in coordination with the university, the organization of student visits to classes and target discussions with and the supervision of students (Br1). In the first case of formal human resources development, one focusses on competence development concerning mentoring and action-based R&D (Tr1). In the second case, the competence development of the teaching staff in classroom development is promoted through the analysis and further development of the materials developed by the students within the framework of the University School concept. Thus, human resources development takes place via competence growth in teaching development (Ba5). Due to this interdependence, the Ba5 process is also addressed with regard to teaching development.

Approach and actors involved: Both university stakeholders and University School teachers are involved in coordinating the course content and the design of the formal human resources development courses. Nevertheless, the Good Practices differ in terms of their target groups: The formal courses for the professionalization of teachers (Tr1) and the informal learning of the coordinator and the head of school (Br1) are aimed at teachers of the University Schools and thus implicitly at school improvement of the University Schools. In contrast, the Good Practice description Ba5 explicitly addresses teachers who do not teach at University Schools. School improvement thus also affects schools that are not included in the concept of University Schools.

Conditions of execution: The implementation of further formal training extends over a more extended time in each case. It is carried out either during working hours (Tr1) or within the framework of official in-service training (Ba5). In both cases, the success of the measure depends on the acceptance and attendance of the further training measure by the teachers. The school improvement itself can only take place if the acquired competences also are applied. Informal learning (Br1) can be supported by attending formal courses. In addition, the head teacher may grant a bonus to remunerate the coordinator for the extra work.

4.4.2 Comparison of Good Practices with a focus on teaching development

The following comments compare the two Good Practices, in which school improvement is to be initiated via instructional development and research-based learning (Ba1, Ba5). The Good Practices describe activities at the Bamberg University School concept and link them to each

other via the used results. Nevertheless, in one case, they initiate school improvement in the "commissioning" University Schools (Ba1), in the other in schools that are not included in the concept of University Schools (Ba5).

Objective: In process Ba1, students develop appropriate material to solve a practical problem in school. The results flow back to the schools on an extra-curricular basis and can – if they are used and implemented there – enable school improvement. In the Ba5 process, these same materials are made available to a larger group of people and schools for further development and implementation. For this purpose – as already described – a further training event with the teaching staff will be held. The results – materially and/or in the knowledge gained by the teachers – can then be used in the relevant schools.

Actors involved: Good Practice Ba1 involves the persons in charge at the university, the teaching staff of the University Schools as well as the students in different constellations and stages of activity. Good Practice Ba5 also involves those responsible for the University School at the university as well as selected teaching staff of University Schools and, in addition, teaching staff of non-University Schools.

Conditions of execution: Both Good Practices require the possibility to implement the results and insights gained from teaching and personnel development in schools. Ba5 also yet has to be approved as teacher training.

4.4.3 Comparison of Good Practices with a focus on organizational development

The following explanations are limited to a comparison of the two processes, which are closely related to organizational development (Tr2, Ba4).

Objectives: The Good Practices outline two processes of school improvement (focus: organizational development) with fundamentally different objectives. In one case, the criteria-based application and selection process of potential University Schools is described. In order to fulfil the requirements, an upstream school improvement might be necessary. With their status as University Schools, a new development process of the school begins within the University School concept (Tr2). The other Good Practice description outlines a process for the joint modification of the University School concept, which could have an impact on school improvement (Ba4).

Approach and actors involved: Due to the diversity of the processes, the approach also differs fundamentally. When selecting University Schools, a process is initiated in which, at first, the selection criteria are defined and, second, schools are called upon to apply. This is followed by a workshop for the applicant schools and the application, anchoring and selection process (Tr2). In contrast, the Good Practice process for the further development of the University School concept describes a development process based on an analysis and reflection of the current situation and the setting of new goals and possibilities for improvement (Ba4).

The selection of the University School in process Tr2 involves representatives from the University, Trondheim municipality and Trøndelag county. A joint workshop with the applicant schools is organized in advance. In contrast, the further development of the University School concept in process Ba4 involves the university members, who are responsible for the University School concept, and the University School teachers.

Conditions of execution: University Schools have so far been selected twice based of defined criteria and formal application processes (Tr2). The meetings for the further development of the University School concept take place regularly twice a year. In both cases, personal meetings or workshops and a mutual agreement are required. In order to initiate school improvement processes based on the Good Practices described above, in both cases, it is necessary to implement the agreed upon and the further development of the University School concepts.

5 Transfer possibilities of the Good Practices

After collecting and comparing the descriptions of Good Practice, the next step is to explore the possibilities to transfer them. Transfer means the process of implementing the activities in other concepts of teacher training (in University Schools) and adapting them to the local conditions. The project partners from Lisbon act as transfer field within the EdUSchool project. The University of Lisbon has not yet developed a structured University School concept (Gerholz et al., 2020, p. 38). Instead, the student teachers spend their internships in the master's program at partner schools that belong to a so-called "Networking of Schools". However, the term "partner school" is misleading; officially, it is a "partner school", in reality, it is more of a "partner teacher". One or more partner teachers at the same partner school

accompany the students through the internship. Cooperation with an entire school is not established yet.

The project partners from University of Lisbon were asked to examine which good practice descriptions of the University School concept from OFU, MUNI, FAU and NTNU could be transferred to the training concept in Lisbon. In general, they conclude that the identified Good Practices have been presented in a comprehensible manner and they particularly appreciate the fact that both factors that promote and inhibit the implementation of the Good Practices were presented. In detail, the project partners can especially imagine transferring the processes Tr2 and Tr1 to their own concept – particularly for the beginning of the transformation process. These Good Practice Activities help to intensify school partnership. At the same time, their implementation involves a significant amount of effort.

Tr2 describes the criteria-based selection process for University Schools. This Good Practice illustrates how to develop a sustained and robust connection between university and school. In this way, it might be possible for the University of Lisbon to have real partner schools – University Schools – with strong institutional cooperation alongside the already established individual arrangements. The application and selection process of the schools that is part of the Good Practice Description could also provide a change of perspective. So far, the cooperation in Lisbon usually is initiated unilaterally: The responsible persons at the University of Lisbon act as applicants to the schools so that students can gain practical experience. Established school partnerships for which the schools apply could help to simplify and automate this process.

Furthermore, the cooperation partner would possibly promote responsibility and a more substantial commitment to the further development of the school partnership and its effects. In the transfer process to the Lisbon context, the description of the project partners from Norway would be followed without major adjustments. The established criteria for the selection process of University Schools can also be adopted and used.

Tr1 describes school-based professional courses for teachers in University Schools. Currently, only the partner teachers of the University of Lisbon have the opportunity to participate in professional development activities. However, with the implementation of the Good Practice Activity, it would be possible to offer a wider range of activities for all teachers in the school. Difficulties could arise in the transfer process to the Lisbon concept if the courses are to be compulsory for all teachers. The obligation is not compatible with the usual in-service teacher

training structure in Lisbon and could also encounter individual resistance from teachers. At this point, the process would have to be adapted somehow.

In addition to Tr2 and Tr1, the Lisbon project partners could imagine adopting some of the Good Practices on R&D or professionalization of students in their concept, whereby they see similar processes already established in their existing school partnerships. The processes described for this purpose would therefore tend to further develop or improve the existing processes in the Lisbon concept. However, these changes would not have such a widespread impact as the introduction of processes Tr2 and Tr1.

The view from outside opens up new perspectives. The project partners from Lisbon see potential opportunities to complement the good practice collection. In particular, Good Practices dealing especially with assessment and evaluation could be included. This assessment and evaluation of activities could be reviewed and developed on the institutional level, i.e. review and further develop the effectiveness of the school partnership for both sides. Assessment and evaluation could also address the individual development of the students and record the further development of the students through their work at school. The comprehensive reflection processes, but also the appraisal sessions (Nu) or the review of the past semester (Ba) take up these considerations of assessment and evaluation. The fact that there are no other processes in the good practice collection does not mean that considerations of assessment and evaluation are not present in the University School concepts. Nevertheless, the reference of the project partners from Lisbon offers an impulse for the further development of University Schools.

6 Conclusion

IO 2 aimed to collect Good Practice descriptions from EdUSchool project partners from the universities OFU, MUNI, FAU and NTNU in order to make them available to a broader community. The Good Practice Collection shows the following: Different approaches and diverse learning opportunities characterize the different University School concepts. The activities located in the fields of R&D, professionalization and school improvement (EdUSchool triple helix). Some activities are similar in several concepts others are unique. Their disclosure might inspire other locations of teacher education so that they can benefit from the established approaches.

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