Directorate for Education
Centre for Educational Research and Innovation (CERI), OECD

Innovative Learning Environments (ILE)

INVENTORY CASE STUDY

ImPULS School of Schmiedefeld

Germany (Thuringia)

This secondary modern school (123 students aged 10 to 16), was previously a state project school to investigate teaching and organization in small secondary schools, in the philosophy of "Jenaplan" reform pedagogy. Its classes are mixed in terms of student abilities and, in part, student age. The school day is consciously structured to begin with an assembly of the whole learning group, and further includes blocks of time allocated to cross curricular work and to the planning of individual learning activities. There are exercise breaks, and the classes have lunch together. Students present their results in weekly sessions. The school uses tools like learning diaries and learning contracts, and supplements regular school certificates with individual report letters. The school's activities to prepare students for the choice of a profession (e.g., yearly practical projects in different companies from grade 7 to 9, portfolio work, etc.) have received several awards.

This Innovative Learning Environment case study has been prepared specifically for the OECD/ILE project. Research has been undertaken by Michaela Gläser-Zikuda, Sascha Ziegelbauer, Julia Rohde, Mathias Conrad & Susi Limprecht from the Friedrich-Schiller-University of Jena under the supervision of Ralph Leipold and Anja Uthleb from the Ministry for Education, Science and Culture of Thuringia, Germany, following the research guidelines of the ILE project.

ILE "Innovative Learning Environments"

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Case Study:
ImPULS School of Schmiedefeld

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1. Introduction

The sample of innovative learning environments (ILE) of the inventory pool includes three schools, namely the Jenaplan School of Jena, the Lobdeburg School and the ImPULS School Schmiedefeld.
The ImPULS School presents a thoroughly consistent concept that meets every area of the OECD innovation term. The particular elements are merging in a natural way. Learning at this school is characterized by responsibility and autonomy. This applies both to one's own learning and the support of the learning pathways of other students. In the everyday school life self-regulated learning is supported by structural as well as methodical elements.
The ImPULS School, as well as the other both schools, are located in Thuringia, Germany.
Thuringia is one of the 16 federal states of Germany. Due to the federal government's responsibility to educate its citizens, the educational system of this state refers only briefly to the structure of the German educational system. It is important to point out that the descriptions of schools and innovative learning environments can be understood only in this context. That's why a short description of the German educational system should not be renounced. Therefore, elements of this system will be concisely described, as follows.[1] This specific knowledge is necessary in order to better understand the ILE project.

The German educational system has three different kinds of general education school leaving certificates. These are: 1) the secondary education certificate, called the "Hauptschulabschluss" (obtained after 9 years), 2) the higher-level secondary education degree, called the "Realschulabschluss" (obtained after 10 years), and 3) the general higher education entrance qualification and the specialized higher education entrance qualification (called the "Abitur" and "Fachabitur" respectively) which are required for attendance at a university (obtained after 12 or 13 years of schooling). These can be achieved after graduating from lower and upper secondary schools (I and II) in the German educational system. The secondary school (II) continues on from the tenth year of lower secondary school (I), which in turn builds upon the education received at the primary school level.
From ages 6 to 10, German pupils attend primary school. The primary school provides recommendations for each pupil during his/her fourth and final year there to attend one of the three forms of secondary school as mentioned above (the "Hauptschule", the "Realschule" and the "Gymnasium"). The lower secondary school (from the 5th to the 10th grade) includes two years of orientation to allow for changes into other school paths on the secondary level. However, this is not always the case in other federal states in Germany. Therefore, it is important to refer to the school system in Thuringia.
In Thuringia there are schools that are funded by the state government or by private institutions. The Thuringian school forms are: the primary school (Grundschule), lower secondary school ("Regelschule"), higher secondary school (Gymnasium), comprehensive school (Gesamtschule) as well as special-needs schools (Förderschulen)[2]. The "Regelschule" includes two types of lower secondary schools (the Hauptschule- and Realschule). The secondary education certificate is automatically achieved after the 9th grade/class. If a pupil voluntarily takes an additional "Hauptschule" test and passes it, he will receive the "qualified certificate of secondary education" (Qualifizierender Hauptschulabschluss). The higher-level secondary education certificate is achieved after the 10th grade. This latter certificate allows entrance into the highest secondary school classes (11th and 12th grade). Both the lower secondary

[1] Specifications of particular German federal states will not be mentioned, but they are presented on the following website: http://www.bildungsserver.de/zeigen.html?seite=505
[2] Vocational schools are not considered.

education certificate (Hauptschulabschluss) and the higher-level secondary education certificate ("Realschulabschluss") can be obtained at the higher secondary school (Gymnasium). Once either of these school leaving certificates is obtained, the pupil is allowed to enter grades 10 or 11, respectively. At the end of the "Gymnasium" school curriculum, the pupil is qualified to attend a university. The structure of the "Gymnasium" is similar to that of the comprehensive school (Gesamtschule). However, pupils complete the secondary education school leaving certificates obtained after 9 or 10 years in the same way as the procedure is in "Regelschule". The highest secondary school classes in the "Gesamtschule" include three years (11^{th}-13^{th}) instead of two additional years.

2. Method

Based on the OECD / CERI standards, elements of innovative learning environments were collected and analyzed using various research methods (Bortz & Döring, 2006; Flick, 2005). Interviews with different school staff, semi-structured observations in school classes and specific learning environments, as well as document analyses were conducted. All the collected data were analyzed applying the qualitative content analysis method (Mayring, 2002).
In process of the data collection, **semi-structured interviews** have been conducted first. Therefore semi-structured interviews were raised with different members of the school management, teachers and pupils from the innovative learning environments, as well as others (parents, school social workers, etc.). All persons interviewed could also put questions and answer free-style. The interviews at the ImPULS School of Schmiedefeld were conducted in October of 2010. The digitally taped interviews were transcribed and analyzed with qualitative content analysis. The aim of the interviews was to acquire school-specific innovative concepts and learning concepts. During the interviews with the school management, certain learning environments selected by the school management were discussed.
Furthermore, **observations of ILE** were conducted**.** The sitting-in sessions of ILE were documented using a semi-structured observation instrument which included **open- and closed-structured parts**. These observation categories focused on the role of the teacher and pupil in the innovative learning environments.
The open part of the observation served for compiling basic elements of the ILE. General aspects were important in this case, such as which persons were involved, the room arrangement, the organization of time, as well as the course of action with regard to content and the structure of the learning surroundings.
The closed-structured observation was based on a category system in the context of teaching quality research (Helmke, 2009). Various elements related to instructional quality are in the focus for observation during teaching-learning situations. These are for example:

- class management,
- learning climate, motivation,
- structuralization, consolidation,
- activation,
- differentiation,
- interdisciplinary competencies,
- variety of teaching methods,
- amount of pupils´ speaking time during plenary work.

The observation data were analyzed by a deductive-oriented content analysis (cf. Mayring, 2002).
Finally, a **document analysis** completes the evaluation. A document analysis of the school program and further documents was done to get an insight into the general institutional framework and concepts of the school. Furthermore, evaluation reports were analyzed to gain information on the effectiveness of the ILE.

3. Results of the case study

3.1 Key area A: Context details, goals and history of the innovative learning surroundings

3.1.1 General information about the ImPULS School of Schmiedefeld

The secondary school ImPULS School of Schmiedefeld is located in a rural region in the Thuringian Forest. The region has 1796 inhabitants and is known for its winter sport activities. The pupils of the surrounding communities Frauenwald, Stützerbach and Vesser attend the school from the 5th to the 9th/10th grade. At the time of investigation, 64 female and 69 male pupils were learning at the school. They are taught by 14 female and 3 male teachers.

Figure 1, on the left: The school-building of the ImPULS School Schmiedefeld. On the right: A sculpture with the logo of the school decorates the school-entrance.

3.1.2 Philosophy and aims of the school

> *"We are proud of everything we have achieved until now. However we know that this is not the end of our way of advancing our school."* (headmistress)
> Inspired by several aspects of the pedagogical concept of Peter Petersen (Jenaplan) the ImPULS School of Schmiedefeld aims at a learning and teaching concept that sees learning from the eyes of the child. The school follows two aims: 1) lifelong learning and 2) creating a balance between promoting individual interests/needs and the communication of social ideals and rules.

> *"Besides high achievement demands in learning and working, school should be joyful for pupils, as well as for the teachers" (school homepage)*

After some first experiences with the development of a profile for learning with media the colleagues of the ImPULS School got aware that media cannot force new learning at school. Rather, school development should take place anytime and everywhere in the school life. Therefore, it has been a logical consequence, that the whole school should open itself, and explore new grounds. Because of the insight into different reform-pedagogical concepts, the ImPULS School decided to create learning environments that are suitable for connecting different subjects and ages.
The school aims at preparing pupils to be able to cope with problems of their current and prospective life, to come up with the requirements of the economy, and to open themselves for international and intercultural experiences. That means, that pupils have to develop a willingness to learn, an ability to act autonomously, and a conscious as well as a continuous self-reflection. According to the Thuringian Education Curriculum the following four competencies have to be supported: expertise, as well as methodological, social and self-competence.

3.1.3 Professional understanding of the tasks of a teacher

A pre-condition for developing school and lessons is the development of the personnel. For a school concept that can be described as a learning organization, teachers who understand themselves as being in a permanent further education are necessary. Therefore, every teacher in the ImPULS School has the possibility to specialize himself/herself without being stipulated to a special qualification. Because of the ongoing development and changes in school every teacher is invited to explore and develop new possibilities and potentials – a fact that implies having a cooperative understanding of the own profession. The teachers have the principles to learn together and to accept differences. Hence, the following values and norms are valid for pupils, how for teachers:

- the right to an own identity,
- positive estimation of differences/heterogeneity,
- living within social relations,
- learning will never be finished.

Since 1999, the teachers have been developing a clear structure for promoting a co-operative climate at the ImPULS School. On the one hand, groups of teachers teaching different subjects were formed, who are still working together. On the other hand, a few groups of teachers are working on the school development. They regard specific and relevant conditions of the ImPULS School in Schmiedefeld and develop working materials for school lessons. The headmistress is monitoring the working process of the different groups to assure the quality and effectiveness of school and lesson development.

3.1.4 History of the establishment and development of the school

Changes in politics and social life after reunification of the two German states the beginning of the 1990s have led to conceptual changes about learning and living in the
school context. In accordance to former pedagogical concepts, like the Jenaplan, the learning environments were arranged in a more open way. Working forms in weekly rhythms and projects were started. These approaches have the objective to foster social, personal and methodological competencies, in addition to the expertise in a subject. In 1992, first steps were done by introducing multimedia projects. In succession of this project, the school got the profile for media education. These steps, including a school trial, called “media education – school communication”, were funded by the Thuringia Ministry of Education, Science and Culture. The concepts and experience have been disseminated in advanced trainings. In the school year 1999/2000, a school experiment was started to link new approaches with the proven system. After all, in the school year 2007/2008, an all-day school concept was integrated.

3.2 Key area B: Characteristics and learning structure of the school

3.2.1 The design of school life – the school as a place of living

Exterior school design
The building of the ImPULS School has been fully reconstructed and improved. The mixed-age groups of the $5^{th}/6^{th}$ grades are located in the extended part of the building (1993). There are a lot of modern equipped rooms for the individual learning time. Furthermore, there are an auditorium, a reading room, a pupils´ isle and a teachers´ isle with personal working places, a modern kitchen, two computer labs, a multimedia area, an administration area and an office of the pupils´ company. Everywhere in the building, the works of the pupils´ are presented. These show the creativity of the pupils in this learning environment. The large area around the school offers many places for learning activities and enjoying free time. The gym is accessible directly from the school building.

Pupils´ participation

Pupils´ participation and activity is a very important goal of the pedagogical profile. The meeting, called pupils´ impulse (Schüler-ImPULS), is a weekly event. Representatives of each class come to this meeting and discuss new ideas and problems. The headmistress can take part in this meeting as a guest. Furthermore, pupils of the ImPULS School can participate in the editorial staff of the pupils´ magazine. Another organisation managed by pupils is the ImPULS Event Management. This pupils´ company organizes birthdays of children in the auditorium of the school building.

Parental participation

There are a lot of areas for parental participation in school life and school development. For example, they can actively collaborate in regulars´ tables, in meetings of the representatives of parents, in an association to foster disadvantaged pupils, and last but not least in a teacher-parent-workshop. The workshop helps to experience methods, which are learnt by the pupils in lessons. For example, the parents reflect about alternative learning concepts with the teachers. By that parents get familiar with the learning concepts of the school, and they have the opportunity to participate on the development of these concepts.

School cooperation with other institutions and partners

The ImPULS School has school partnerships with a Dutch and with a French school. Co-operations with other partners are visible, for example by the membership in the Swedish network (network of Thuringian and Swedish all-day schools). Furthermore, the school is a member of the national network of schools with a reform-pedagogical concept, called "Blick über den Zaun" (view over the fence). Other important partners are the Ability Verein (an association for more generation houses), Berufsstart plus (a project for the transition into vocational training), the Bildungswerk Erfurt, and the State Development Corporation of Thuringia.

The school was also a member of the project "Kleine Regelschule" (small secondary school) of the Thuringian Ministry of Education, Science and Culture. Funded by the Bertelsmann Stiftung, the ImPULS School was a network school within the program “lifelong learning“. This shows that the ImPULS School belongs to the national network of innovative schools in Germany.

Internal and external evaluation of the school

The process of the school development at the ImPULS School is documented in detail. The plans of school development are presented the whole year in the school floor. Everyone, participants and also guests, can see them. They show present elements of the school development (figure 2). This kind of public presentation enables pupils, as well as the parents a continuous insight into the development of the school. In contrast to many other schools, all parties concerned participate in this process. School development at the ImPULS School can therefore be termed as innovative.

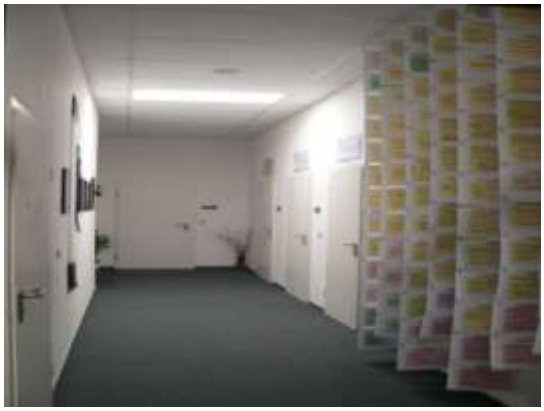


Figure 2: A school corridor with the continuously presentation of actual elements of school development (at the right side of the picture).

The plan of school development includes the areas of school development, like lessons, teacher co-operation and school organisation.

In the school year 2010/2011, the following elements of school development are presented: lessons with interdisciplinary character, media, competence development, differentiation to foster individual needs and competencies, learning strategies, co-operation between school and economy, school community and partners, teacher co-operation, parent co-operation, concept development, evaluation, personnel development and the development of the school organisation.

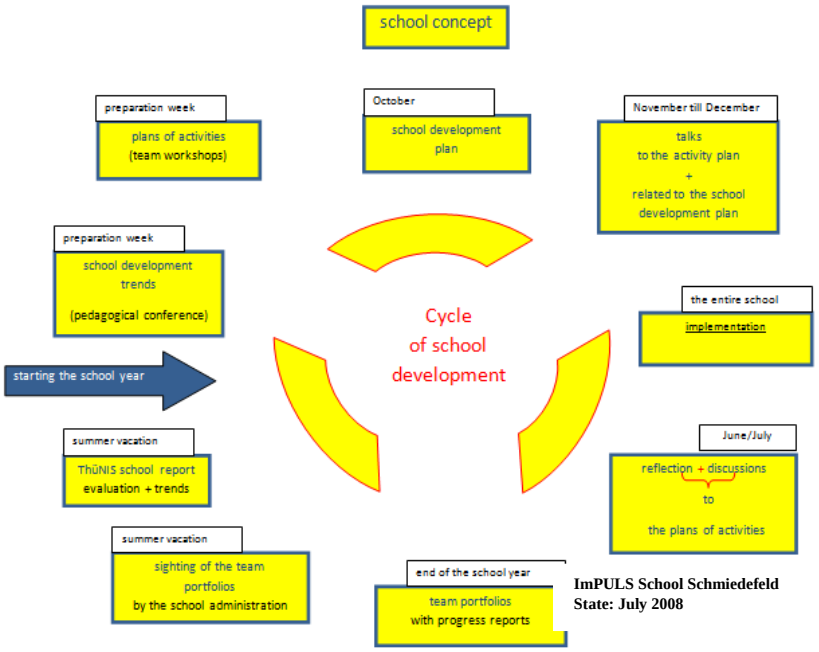


Figure 3: Circle of school development on the ImPULS School of Schmiedefeld.

The precise concepts are shown for each element. The whole self-monitoring and self-evaluation concept is shown in figure 3. It describes a circuit process of planning, monitoring and evaluating the own school development. Specific concepts of evaluation and their results will be shown and discussed in part D of this report (Effects and effectiveness of the school).

Constructive criticism is an important element in the concept of the ImPULS School of Schmiedefeld. It is understood as the cause for school development. While there is a co-operation with external evaluation teams, the special views and beliefs of the own pupils are also valued. The school leavers can fill out a questionnaire. It includes questions about the quality of the education that can be gained in the ImPULS School. Above all, there are questions about relevant competencies that are needed for vocational training. At the end, the former pupils can give advice about possible areas of future developments.

3.2.2 The organization of learning and teaching

The lesson development focuses on self-regulation and action-orientated learning environments. Pupils are seen as active, constructive and self-determined learners. They are discoverers of their own world. So they have to be involved in the conception and development of lessons and school life. Accordingly, the ImPULS School is an environment, which promotes:

- self-regulated, discovery-based, research-based, social and individual learning,
- critical thinking and reflection,
- and forming an autonomous and competent human being.

The core-lessons are different to the course-lessons. The core-lesson defines the basic concept of the educational plan of the school. In mixed-age groups the pupils deal with interdisciplinary topics. As a result of an intensive analysis of the Thuringia curriculum, the pupils have to deal with the following topics:

- General subjects (human-nature-technology), history, and geography,
- Nature (chemistry, physics, and biology in the class levels 7 and 8),
- Society (history, sociology, geography in the class levels 8-10),

- Culture (German language, art, and music in the class levels 5-10),
- WRT (economy, law, and technology in the class levels 7-9),
- TUN (technology and science education in the class levels 7-10),
- Media world (fostering media competencies in the class levels 7-10).

Attending the core-lessons, the pupils are supported in using various perspectives. They have to link their knowledge by the discovery of interdependencies in real life contexts. Thus, they can experience learning as an interdisciplinary process.

The course-lessons aim at fostering a fundamental knowledge. With this element, the ImPULS School should meet the requirements of the following higher secondary education schools. Nevertheless, conceptual elements of the ImPULS School of Schmiedefeld can also be found in the course-lessons. For example, multi perspective approaches and individualized learning arrangements are promoted. According to the concept of the learning competence, the subject specific competencies (expertise) are not the only ones that are fostered. Methodical-, social- and personal-competencies are also supported.

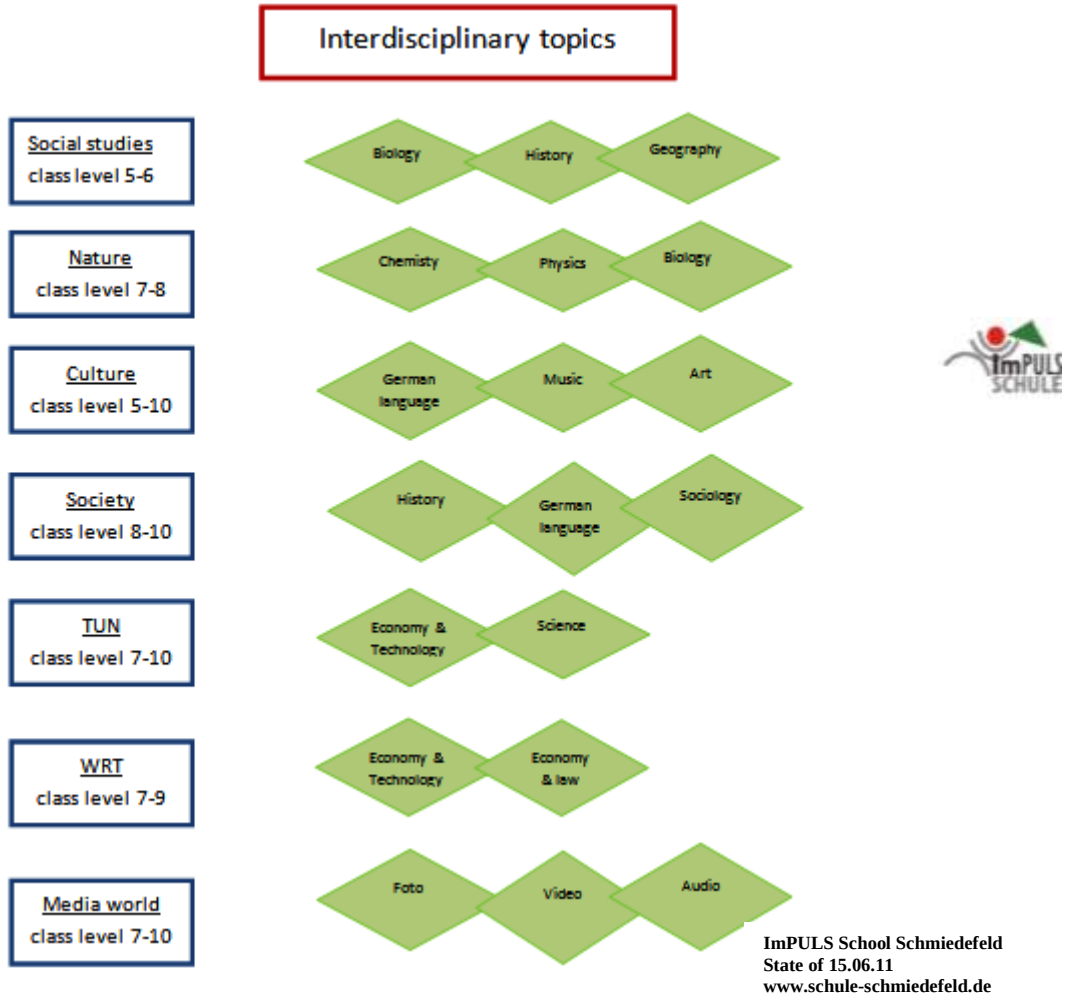


Figure 4: Interdisciplinary topics

Beside the creation and development of the lessons for the purposes of innovative learning environments, specific features stand out at the school also concerning the class composition. Looking at the demographic development

regarding a decrease of pupils, a contact with the Thuringian Institute for Teacher Education, Curriculum Development and Media was established. The ImPULS School decided to develop a school concept oriented to the reform-pedagogical concept of Jenaplan. The teachers experienced that mixed-age groups offer excellent conditions for social learning. The pupils have to change their perspectives from the younger to the elder ones', from the learner to the teacher, and vice-versa. Pupils foster each other and learn and live in a learning community, and by that traditional patterns of learning and teaching changed and reduced. Since then, mixed-age groups are an important element of the pedagogical concept of the ImPULS School. Learners in mixed-age groups have heterogeneous competencies and abilities. However, this heterogeneity is not perceived as a disadvantage in the school. Heterogeneity is rather an important condition for the lesson and school development. Furthermore, the pupils get activated for working with tasks on a higher cognitive level. The ImPULS School aims at the usage of mixed-age groups particularly in subjects like social studies, nature, culture, WRT and media. New subjects included in this concept will be Mathematics and English.

Sitting together in a circle of chairs every morning and Friday, as well as the celebration Friday are also organized in mixed-age groups. In the mixed-age groups the pupils feel like at home. There are no longer traditional homogeneous classes in the ImPULS School.

Concerning the thematically focus of teaching, the promotion of media competence seems to be an important fact in the school, too. The school stresses out that an important cultural ability is the adequate usage of media in different contexts. Because of this school specific point of view, the ImPULS School has established the usage of actual media in school lessons since 1991. All began with the foundation of a pupils´ video club. Modern media and technology were used to foster basic media education. The good media equipment in the school makes a qualitatively high media education possible. The pupils can learn the critical usage of media by making their own experience. In this way, they are not only consumers of media; they work with it and learn to reflect critically on media usage.

The integrated media education in the school lessons of the ImPULS School starts in the 5th grade. Thus integrated means that these media-pedagogical efforts are contain in the daily general lessons. Technology is therefore in a didactical motivated use in the school. Media education is understood to be process- and not only product-oriented. That's the difference to most other German schools. Usually, there are special lessons at those schools named 'Informatik' who train the pupils in dealing with media technology. Often such a type from lessons starts in the upper school and not, as in the ImPULS School, already in 5th grade. Integrated media education also considers that media education is part of all areas of school development concept. The reason for this early start is the fast social change. For example, mobile phones are already no more rarity in primary school. So, the school concept fosters an early media education concept from the beginning of the secondary education. The concept anchors the media education explicitly in the pre-knowledge of the pupils. At the beginning, the pupils learn basic information and skills that are relevant for the future media education in the ImPULS School.

Looking at the demands of innovative learning environments, didactics and methodical repertoire plays an important role. ImPULS School in Schmiedefeld offers various methods that focus on pupils' activity. The pupils get additional support from the teachers by direct instruction. In the learning environments, topics are anchored in authentic real life contexts. Consequently, the learners´ own ideas and mental representations are fostered.

Project orientated learning environments have its own value at the ImPULS School. Every pupil can develop his/her own identity in a specific way in this context. Therefore, one central theme of the ImPULS School is the "right to an own identity". To implement this right for each pupil, the necessary free space is given by project orientated learning environments. Here, pupils can co-operate with teachers. Teachers are changing their role from instructors to facilitators. Pupils take responsibility for their own learning process. This is one indicator for the constructivist and reform-pedagogical orientation of the learning concepts at the ImPULS School. Some working forms are: weekly schedules, learning stations, group work, free work and the expert-model. In this context, values like responsibility and solidarity are important. One problem of the co-operative learning environments is that the usage is hard to learn and there is a lot of prearrangement. Therefore, the pupils get specific learning strategy trainings and the learning materials for each topic are well prepared. The curriculum for learning strategies is shown in figure 5.

ImPULS-Schule, Staatliche Regelschule Schmiedefeld

Overview of the introduction of the learning strategies

Grade 5/6		Grade 7/8		Grade 9		Grade 10	
Solve an assignment with the help of a material text	Ger	Compare II	Bio	Indcation from bibliography and citations	Ger	Repetition: Indication from bibliography and citations	Ger
Infer the most important from a text	Ger	Observe II	Nature				
Reading and writing from statistics and diagrams	Ma	Explain/justify/ clarify	MK[3]				
Describe from people, objects, processes	Ger	Write of a report	Ger				
Sort	Social studies	Mind mapping	MK				
Construction of an overview I	Social Studies	Manufacture of an organisation	Ger				
Construction of a chat	Social Studies	Construction of an overview II	MK				
Mind Map	Eng						
Compare I	Social Studies						
Present	Social Studies						
Observe	Social Studies (MNT)[4]						

Figure 5: Method curriculum at the ImPULS School Schmiedefeld.

Another innovative educational concept is the assessment of the pupils. Learning is seen as a multidimensional process. In the context of self-regulated learning, assessment is not only used for ratings. It is an elemental process to support self-regulated learning. Not only content knowledge but as well methodical, personal and social aspects of learning are assessed. Therefore, specific criteria of evaluation are necessary. These criteria or rules include for example:

- Formulate critique and at the same time give tips for improvement.
- Make teacher's expectations clear for the pupil.
- Describe positive and/ or negative tendencies in the development of the pupil in detail.
- Give detailed advice for pupils' further development.

They have to consider cognitive, methodical, social and affective aspects. With these criteria, made transparent for the pupils, the process of assessment is more flexible and comprehensible.
Assessment at the ImPULS School has a specific guideline. It is seen as feedback for the pupil and not as judgement about the pupil. The assessment should be an orientation for the pupils. Feedback is seen as the foundation for the reflection and development of the pupil's own learning. Thus, assessment is the beginning of new learning processes and not just its end.

3.3 Key area C: The state and quality of learning at the school

In the following part of this report, three exemplary aspects of learning environments are specifically introduced. For a better understanding it is important to know that the report's authors have their specific idea of innovative learning environments. It is not the total school which per se can be identified as an innovative learning environment. It is the

[3] MK means: Media studies
[4] MNT means: Humankind-nature-technology

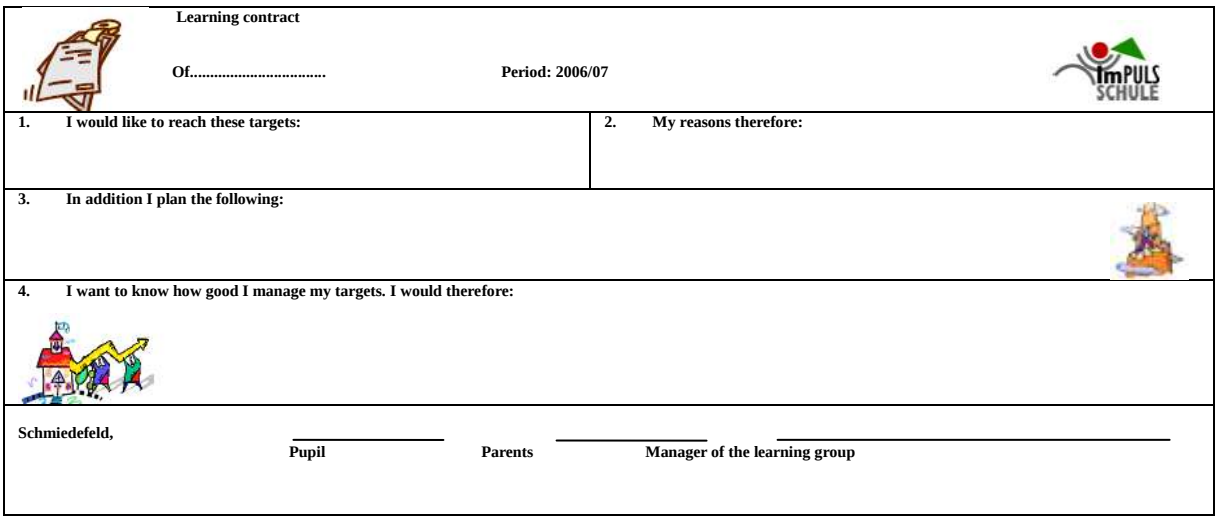
interaction of all specific settings at a school. Corresponding to this perception the report presents three selected settings at the ImPULS School. They were chosen to characterize the state and the quality of learning at the ImPULS School. Single elements were already explained in this report and thus will be outlined only briefly. The selection of these three aspects of learning environments occurred in two steps. In the first step, a group of ImPULS School staff provided a list with those learning environments which they themselves deemed suitable for a closer look. In the second step, the following three aspects of learning environments were selected by this report's authors:

1. Individual time for learning and planning (ILZ)
2. Working with checklists
3. Main time concept

3.3.1 Individual time for learning and planning (ILZ)

Concept

The pupils have the opportunity to work three times a week in the ILZ. Here they can process subjects that fit to their own interests. The mixed-age groups 5/6, 7/8 and 9/10 have individual time for learning in the subjects German, Mathematics and English. The time extent for the ILZ is about 40 minutes. The pupils can process known topics to exercise or new, unknown topics as preparatory work for future topics. The ILZ fosters self-regulation competencies. So the pupils have to plan, monitor and reflect the learning process. Therefore, they can take time every morning for planning the aims of the day and the week with the help of their individual learning diaries. This is work in progress, and it can change from time to time. An important aspect of the work in the ILZ is the learning contract (figure 6) which is understood as a result of former school reports. The contract includes aims for the whole year. These aims are fundamental for the weekly and daily learning aims.



Learning contract

Of..... **Period: 2006/07**

1. I would like to reach these targets:	**2. My reasons therefore:**
3. In addition I plan the following:	
4. I want to know how good I manage my targets. I would therefore:	

Schmiedefeld,

Pupil **Parents** **Manager of the learning group**

Name:

Evaluation session **Date:** **for the improvement process**	
1. Quality of fulfilling the learning contact: ☐ y good good ☐ sufficient ☐ insufficient ☐	
Comments/ Reasons:	
2. Critiques/ Suggestions:	
Signatures: Pupil _____ Class teacher _____	

Figure 6: Learning contract

Participating persons

Learner: The mixed-age group of learners includes children and teenagers of two following grades (for example: 5th and 6th grade).

Teachers: The leaders of the learning groups and the subject teachers of the mixed-age groups are not instructors. They act as tutors or facilitators.

Time organisation

Planning time: Subsequent to the daily morning circle, the learners work independent with their own learning diaries (figure 7). Supported by the teachers, they plan weekly and daily aims. Furthermore, they reflect about the previous day. This routine takes about 15 minutes a day. At the end of the week, the happenings and successes of the week are reflected. The next week will be planned.

Individual learning time: After the planning phase, the pupils can start with their work. The topic can be chosen by elder pupils. Younger pupils have to take a given topic. No matter what kind of topic, a large amount of worksheets can be chosen. For support, the pupils can use a specific workbook, called "Pendelheft", and checklists.

> *"It can be, that one pupil is writing for the school magazine, while another pupil* is testing his/her spelling *and the third pupil is reading a text. Every pupil has resources of learning strategies available as a precondition for effective working." (cf. quotation from the ImPULS School).*

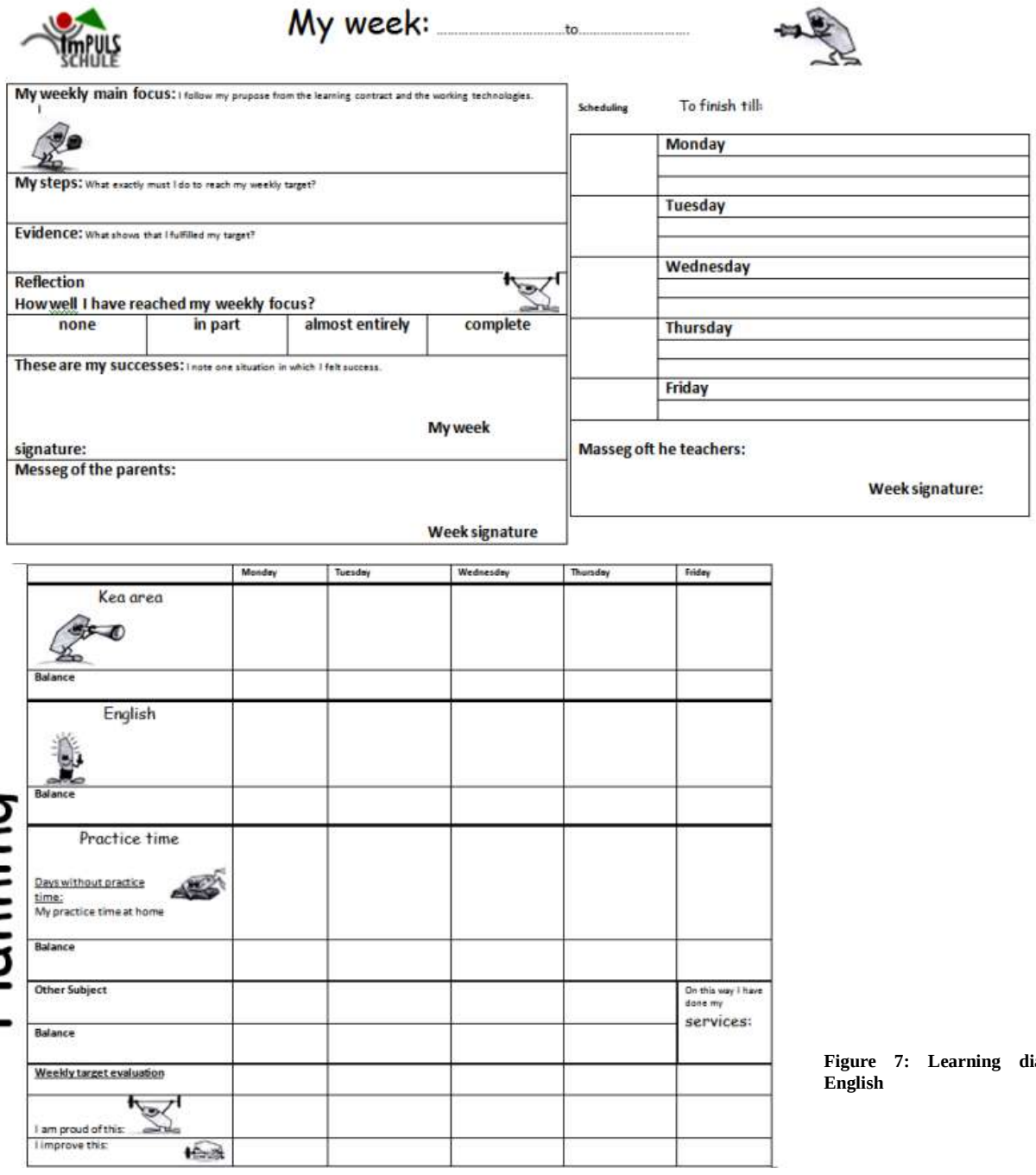


Figure 7: Learning diary in English

Room design

The classrooms were designed in an open and friendly way. The pupils can choose the working places and tables. Group work is possible in smaller and in larger groups. The pupils can also work alone, if they want. Discussions and reflections are done in chair circles. The working climate can be characterized as concentrated. A lot of working materials are prepared for the pupils. The pupils can use the material, but they don't need to use it. Furthermore, the learning groups can use other places beyond the classroom. The whole school area can be used.

3.3.2 Working with checklists

Concept

The pupils work in the mixed-age groups 5/6 and 7/8 in the subjects English and mathematics with the help of checklists. Therefore, central topics are orientated on competencies. They are formulated in the form: "I can …" . (figure 8)

The pupils exercise basic topics with the help of obligatory tasks. They can freely choose the processing order of the topics. With the help of self-tests, they can monitor the quality of their learning results. For consolidation, the students can choose additional topics and worksheets.

Check	**True!**	**Not true!**	**Tasks to be found on page…**
I can transfer the terms of the percentage calculation on the calculation of interest!			p.33/34 p. 34/35
I can state the features of the terms on the calculation of interest!			p.33/34 p. 34/35
I can differentiate "allowance", „discount" and „price reduction"!			Help maps
I know the different about „capital" and „credit"			Help maps
I can calculate with compound interest!			box
I can check and compare offers of savings ore credits!			p. 38 p. 36/37
I can apply the comfortable percentages in calculation of interest!			box, „Tafelwerk" (formulary)
I can classify credit and capital in material assignment!			box, „Tafelwerk" (formulary)
I can recognize and assign rate of interest and interest value in material assignment!			p.33/34 p. 34/35
I can solve material assignment about calculation of interest!			p. 41
I can classify increase and reduction in calculation!			p.33/34 p. 34/35
I can calculate month interest and day interest!			p.35/36 p. 38-40

Figure 8: Example of a learning contract to the topic calculation of interest.

Participating persons

Learner: The pupils of the 5th and 6th grade, as well as the pupils of the 7th and 8th grade work in mixed-age groups with the support of checklists.

Teacher: The teachers prepare learning materials, which topics are anchored in the subjects and themes of the Thuringian curriculum. The materials help to foster self-regulated learning.

Time organisation

The working time with the checklists is organized in 80-minute–units. In the morning, the checklists are discussed in a chair circle. Afterwards, the pupils choose their topics according to their own interests and needs. They are guided by worksheets. The self-regulation process is monitored by checklists and self-tests. If the pupil is not satisfied with the result of the test, he/she can repeat it. By this procedure, it is guaranteed that the pupils have dealt with the central topics. Each time, at the end of the 80-minute–

units, the pupils reflect and discuss the completed topics, the used methods, and their individual success sitting with other pupils in chair circles.

Room design
The room is divided into small groups of tables and chairs. Worksheets and other learning materials are prepared on each table. Each pupil can freely use these materials. The teachers are tutors and not instructors and support the pupils by using the checklists. If the pupils cannot help each other, the teacher can give direct support by request.

3.3.3 The main time concept (Cross-curricular teaching)

Concept
During the main time, in all mixed age groups (5/6, 7/8 and 9/10) the lessons are theme-centred. (figure 9) Relevant and interdisciplinary topics were created after a long period of curriculum analysis. The pupils can learn that the themes are cross-curricular complex systems and not specific subjects. For the main time, there are 80 minutes each day.
The mixed age group 5/6 combine the new subject areas culture, MNT, history and geography. Accordingly, the mixed-age groups 7/8 and 9/10 focus on interdisciplinary themes following subject areas from Nature, Culture, Society, WRT, TUN (cf. 3.2.2) and Media.

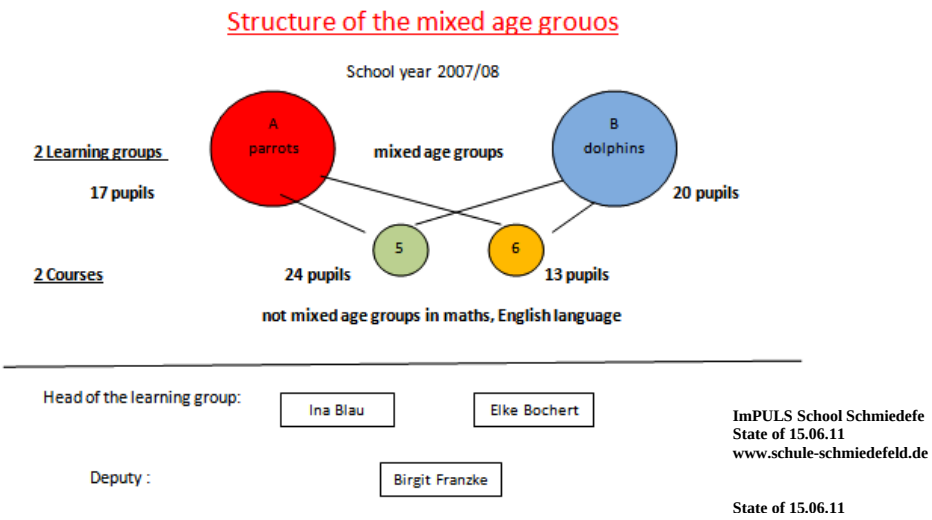


Figure 9: Structure of the mixed age groups

Participating persons
Learner: The pupils in the mixed-age groups work every day in theme-centred lessons.
Teacher: All teachers work in teams and tandems to ensure the quality of the theme-centred lessons. They plan, process, and reflect the lessons together.

Time organization
The timetable of each grade includes a period of 80 minutes in the third and fourth lesson for the main time. In main time plans (figure 10), the subject areas and topics are planned at the beginning of the school year. The interdisciplinary themes are organized teaching periods. The team times of the teachers are fixed. Here they can plan and reflect the main time of the pupils. For a retrospective assessment of the effectiveness of

the main time concept, the teachers set goals for the year and for the estimated development of pupils´ competencies.

Month	Week (38,8)	Week	Hours	Subject introduce AT[1]	D3[2] (116,4)	Ku|2[2] (77,4)	Social studies 3 (116,4) Geography 2 + History 1 (77,6) (38,8)	MNT 2 (humankind-nature-technology) (77,6)
August	II	1	10		Abc- poems 4	2	Our earth 4	
	III	2	10		Look (stations) 2		Our earth 6	
	IV	3	10	Ger: Factual text Ger: Mark Ger: Make key points	Textwork 4	2		Module 1/3 4 5: Science 6: Seed bearing plants
September	I Learning group trip (wedn.-friday)	4	4	Ger: Describe Social studies MNT: Observe, draw and label	Describtion of plants 2			Module 1/3 2 5: Science 6: Seed bearing plants
	II	5	10	Ger: Factual text (substantial)	Write postcards 4	2		Module 1/3 4 5: Science 6: Seed bearing plants
	III	6	10	Math 5: Read diagrams Math 5: Draw diagrams Social studies: Create a overview	Week plan „Herbstzeitlos" 2	Archimboldo „The autumn" 2		Module 1/3 2 5: Science 6: Seed bearing plants Module 3- fabrics 4
	IV	7	10		„Herbstzeitlos" 4	Archimboldo „The autumn" 2	Project „Natural environments „/ Module 5 Life in a habitate 2/2	
	V	8	10	Social studies: Chart	„Herbstzeitlos" 2	Printing with milk carton „Spider" 2	Natural environments „/ Module 5 3/3	
October	I	9	10	Social studies: Präsentation	„Herbstzeitlos" 4	Tree 2	Natural environments „/ Module 5 2/2	
	II/ III Holiday		0	28 16 17+0 23				
October	IV	10	10		Complete reading „Unkaputtbar" 2	Tree 2	Natural environments „/ Module 5 4/2	
November	I	11	10		Complete reading 4	Tree 2	Paleolithic 4	
	II	12	10		Complete reading 2	Tree 2	Paleolithic 6	
	III (Test day)	13	8		Workshop Stone Age 4	Cave painting 2	Neolithic 4	
	IV	14	10		Workshop Stone Age 2	Cave painting 2	Neolithic 6	

December	I	15	10		Workshop Stone Age 4	Amulet 2	Neolithic 4	
	II	16	10	Social studies: Make a outline drawing	Geographically names 2	2	Germany at a glance 6	
	III	17	10		German legends 4	2	Germany at a glance 4	
	IV (thursd., friday holidays)	18	6		German legends 2		Germany at a glance 4	
	V Holidays			54 22 35+24 25				
January	I	19	10		Phrases 2	2	Nord-Ostsee coast 6	
	II	20	10		Phrases 4	2	Nord-Ostsee coast 4	
	III	21	10		Phrases 2	2	North German Plain 6	
	IV	22	10	Ger: Description of an process	Phrases 4	2	North German Plain/ agriculture Module 5: From raw material to final product 3/1	
February	I Holidays			66 30 54+24 26				
February	II	23	10		Phrases 2	2		Module 4 6 Human
	III	24	10	Ger: Structur	Human children 4	Human 2		Module 4 4 Human
	IV	25	10	Ger: Description of a person	Human children 2	Human 2		Module 4 6 Human
March	I	26	10		Human children 4	Human 2		Module 4 4 Human
	II	27	10		2	2		Module 4 6 Sexuality and development
	III	28	10		Egypt 4	Egypt 2	Egypt 4	
	IV	29	10		Egypt 2	Egypt 2	Egypt 6	
	V	30	10		Egypt 4	Egypt 2	Egypt 4	
April	I	31	10		Egypt 2	2	Egypt 6	
	II	32	10		4	2	Low mountain range 4	
	III/IV Holidays			96 50 54+44 52				
May	I	33	10			2	Low mountain range 6	
	II	34	10	Ger: Description of an process	„Baumstark" 4	Landscapes 2		Module 5 4 Life in a habitate: Forest
	III	35	10		„Baumstark" 2	2		Module 5 6 Life in a habitate: Forest
	IV	36	10		„Baumstark" 4	Reading worm 2 (bookmark)		Module 5 4 Life in a habitate: Forest

June	I (Tuesd.: Day of get to know Wedn.: Children´ s Day Thursd.: Holiday)	37	2		„Travel to the world of reading" 2			
	II	38	10		World of reading 4	2	German mineral resources and industry 4	
	III(Monday, Tuesday: Holidays) Walking day	39	4		World of reading 2	2	German industry Module 5: Role of human in the nature	
	IV	40	10		World of reading 4	2	Projekt „The Alps" 2/2 Module 5: Life in a habitate	
	V	41	10		World of reading, reading night 2	2	The Alps 3/3 Module 5: Life in a habitate	
July	I (Thursday , Friday: Conclusio n oft he school year)	42	6				The Alps 3/3 Module 5: Life in a habitate	
					122	66	76+44	76

[1] AT means: work techniques
[2] D3 means: German language - three periods per week are calculated for the main time
[3] Ku2 means: Art - three periods per week are calculated for the main time
[*] Some terms are intentionally not translated, because there are proper nouns.

Figure 10: Main time plan

Room design
A special room design is not relevant for the main time.

3.3.4 Understanding of the innovative learning concept of the ImPULS School

> *"I like that we do have not the usual lessons, in which the teacher stands in front of the pupils and gives direct instructions. We can work our themes out and plan our time autonomously. Therefore, you can learn to organize yourself.*" (Pupil, 7th grade)

The individual learning time in connection with the planning time gives free space for the pupils, to self-regulate the own learning abilities. By that, the chosen learning environments of the ImPULS School in Schmiedefeld represents the innovative approach of the school concept.

> *"You think, now I have this aim, so I will achieve it. […] If you set targets, you will try hard to achieve it."* (Pupil, 7th grade)

The changed personal view of the teachers´ profession is one important innovative aspect. The teachers as facilitators and advisers have to reflect their own acting and expectations to support the pupils in their individual learning processes.

> *"The teacher is not coming to say, "Today we are going to do this …". The pupils know that they can choose the themes."* (Pupil, 7th grade)

"The learning process is totally self-regulated. This means that the pupils think about: What have I done? What will I do? They have to plan. […] According to the pupils´ needs, the themes are consolidated or discussed again." (Teacher)

Working with checklists supports individualized learning processes at the ImPULS School. For getting an orientation and for planning the own learning process, it is helpful that the ImPULS School makes the requirements absolutely transparent.

"Supported by the checklists, the instructive element of the learning process is getting individualized. Individualizing is necessary because the pupils have different pre-knowledge, successes in learning processes, and learning strategies. The checklists give them an orientation." (Teacher)

The personal orientation is an important precondition for an effective handling with heterogeneity. The mixed-age groups make individual learning paths, learning speed, and learning strategies possible. In this context, the ImPULS School is working with different systems of support and reflection.

"Former checklists are often used again, to repeat or assure: Which competencies have been achieved? Which needs do the pupil have? In which areas need the pupil help? Which focus should the pupil have? By that, we can identify causes of pupil's failure very fast and can plan future support." (Teacher)

The pupils can experience the value of co-operative support and reflect their personal benefit for learning by teaching.

"We work (in the 5th and 6th grade) together. If the pupils of the 5th grade do not understand anything, the pupils of the 6th grade can help. So we pupils of the 5th are well prepared for the next year. […] You can also find new friends." (Pupil, 5th class level)

The teachers give assistance to the pupils, that they can make their own experience with each problem. After this, the teacher can help to find new ideas.

"We have a supporting system that can be used by the pupils, if they have forgotten something from a former lesson. There are otherwise teams of experts (pupils) who are well known for the pupils as a supporting system." (Teacher)

Social relatedness, autonomy and experience of competence are important factors for getting motivated. Pupils of different ages show autonomy by creating their own learning.

"It is good, that we can decide what we want to do. For example, in station working phases the teacher is not saying 'You have to do that!' You have the choice." (Pupil, 5th class)

Formative forms of evaluation of learning processes and learning efficiency are important in the daily school life. Daily and weekly documentation and reflection of learning processes are done with learning diaries (cf. 3.3.1). Feedbacks are the basis for learning diaries and learning contracts. This is necessary for the process of self-regulated learning.

"So we learn ourselves but we can also ask our teachers. […] You have an orientation about things you should do and things you need not do. Therefore, you have a plan for your learning time. (Pupil, 8th grade)

Through cross-curricular working the ImPULS School succeeded in finding a form of time organization that allows methodological variety.

„Instead of pigeon-holing [...] there are a lot of topics, that can be dealt with in interdisciplinary contexts." (Teacher)

"The daily rhythm allows lessons in certain learning periods. […] We work three weeks with one theme. […] Before we used to start with a new topic every week w*e [the teachers and pupils] can work continuously step by step."* (Teacher)

"Because of this rhythm, because of the blocks, we use different methods in the learning environment. With only one hour a week, there are no possibilities for project orientated working. […] Sometimes weekly plans, station work or workshop are possible; all in all a variety of methods. Children are different. […] One needs more guidance; another requires *needs more free space for better ideas."* (Teacher)

3.4 Key area D: Effects and effectiveness of the school

To describe and measure the effectiveness of a school is a difficult undertaking. There are countless possibilities and methods to do this. However, the potency of each of these possibilities is to be viewed critically. From the scientific point of view, the point of reference for measuring the effectiveness of a school is always related to the purpose of these points in representing the effectiveness. Therefore, it can occur quickly that schools receive positive, as well as negative ratings which permit a characterization but don't necessarily allow a comparison with other institutions, however. This is also the case for the following results and sources assuming the efficiency and effectiveness of the school.

3.4.1 Achieved final certificates

The ImPULS School offers the certificate of secondary education and the general certificate of secondary education. The following table shows the successfully passed exams of this school on the basis of absolute and relative frequencies. A more exact description of the certificates was already carried out in the introduction.

School year	Final certificates	Number of exam participants	Number of successfully passed exams	Percentage of successfully passed exams (%)
2007/08	Qualifizierender Hauptschulabschluss	25	21	84
	Hauptschulabschluss	4	4	100
	Realschulabschluss	13	11	85
2008/09	Qualifizierender Hauptschulabschluss	16	12	75
	Hauptschulabschluss	4	4	100
	Realschulabschluss	20	20	100
2009/10	Qualifizierender Hauptschulabschluss	14	13	93
	Hauptschulabschluss	1	1	100
	Realschulabschluss	16	15	94

Table 1: Final certificates at the ImPULS School

3.4.2 Results of the Thuringian competence test

In a national competence test, pupils in Thuringia are regularly tested in the subjects of German, mathematics, and English. The grade levels 3, 6 and 8 are focused upon. Comparative data of these tests are the corrected average for the State of Thuringia as well as the ImPULS School average from previous school years. The given percentages show the positive or negative divergence from the Thuringian average.

Test year	Divergence from the corrected Thuringian average
2008	n.s.
2009	ca. 3,5%
2010	n.s.

Table 2: Results of the Thuringian Competency Test in the years from 2008 to 2010

The above table show that the school in 2009 got good results with 3,5% over the average. Thus, pupils from the ImPULS School have stronger competences in German, mathematics and English than the others.

3.4.3 Development project "Self-regulated School" (EVAS)

The evaluation by an external team of experts aims at a whole new view of the school in relation to specific criteria, as well as at providing feedback to the school. These criteria describe the theoretical framework of a "self-regulated school" and contain school-specific criteria that were discussed in advance with the school. The study focuses on the following questions:

- How can mixed-age grouping be realized?
- How does the school rate the targeted diversity of methods?
- What is the schools assessment about the achievement of learner-orientated teaching and the individualization of the learning process?
- How does the special practice of assessment work?

- How does the school achieve its goals regarding its individual situation?

The evaluation included the use of various gathering methods such as interviews, direct observations and document analyses. Therefore, this evaluation report is comparable to the theoretical framework of the OECD/CERI - Project ILE.
The main results of this study were collected based on quotations from the evaluation report. The report focuses on five quality areas of a non-hierarchical order:

Quality Area I: Teaching and Learning
"Continue your committed work on the very positive and supporting learning climate and use it as a foundation for a continuing advancement of the lessons. […] The special way you give feedback to your students strengthens the personality of every pupil and motivates them." (School Report Independent School ImPULS School of Schmiedefeld, p. 3)

Quality Area II: school climate and school culture
"During the daily school routine [...] it's of fundamental importance for pupils and teachers [...] to treat each other respectfully. The pupils notice thankfully that they are taken seriously and become involved in decisions not only in areas of participation guaranteed by law. [...] Often the teachers successfully motivate pupils by commending them. Pupils with weaknesses feel accepted in the school community.
(School Report Independent School ImPULS School of Schmiedefeld, p. 3-4)

Quality Area III: Cooperation and communication
"You have developed well-defined structures of professional cooperation, you are using skills of your external partners and your pupils and parents are actively involved in the school life. Your school works together in binding cooperation with other schools. It's worth noticing that you are working together with many partners of your local and regional surroundings to increase the use of learning places outside of the school.
(School Report Independent School ImPULS School of Schmiedefeld, p. 5)

Quality Area IV: Guidance and Management
„The ImPULS School of Schmiedefeld is run by a confident headmistress who is being supported by a strong team. Within the administration of the school a well-defined allocation of tasks exists according to the individual strong points. […] There are several teams at your school that have actual decision-making power. You are strongly trusted and the success of your work is recognized and appreciated. (School Report Independent School ImPULS School of Schmiedefeld, p. 5-6)

Quality Area V: Aims and strategies
"Your school concept forms the basis for the annual school development plan and therefore the successful work so far. Your school is setting itself clear goals and is developing proper strategies to achieve them. [...] We want to emphasise in particular your culture of evaluation regarding all your developmental steps and your courage to reconsider the adopted course when problems occur. (School Report Independent School ImPULS School of Schmiedefeld, p. 6)

3.4.4 „Thuringian Network for Innovative Schools" (ThüNIS)

The ThüNIS study aims to help schools recognize their actual level of performing and, based on this, focus on a sustainable school development (cf. ThüNIS State ImPULS School Report, 2009). External experts are involved in this study such as scientists and school development advisers, as well as school representatives. The participation of each school is voluntary. The data collection is based on questionnaires, focuses on central aspects and processes at the school such as lessons, school climate, qualification, school organization, and so on.

The central results of this evaluation are structured in accordance with ThüNIS classification standards. They are briefly explained as follows:

- Satisfaction with the teaching of subject-specific competencies: Ratings of the pupils, teachers and parents as to how successfully the pupils learn at school.
- Learning and teaching methods: the use of different learning and teaching methods is recorded.
- Well-balanced lessons: Subject-specific as well as cross-curricular aspects of lessons are rated.
- The support of positive social behaviour: teachers and pupils rate how and to what extent rules and support systems for positive social behaviour exist.
- Individual pupil support: situations in which pupils need (specific) support as well as the existing support systems.
- Assessment: various aspects of assessment and advising in the school are focused on.

The questionnaires follow a normative perspective. It is questionable as to the extent in which the answers of the involved school participants correspond to the norm in the ThüNIS questionnaire. The results are illustrated in terms of percentage for the ImPULS School in comparison to the results from all Thuringian schools.

Area of school development	**Agreement in % (ImPULS School, 2009)**			**Agreement in % (Thuringia)**		
Teaching and learning	**Pupils**	**Parents**	**Teachers**	**Pupils**	**Parents**	**Teachers**
Satisfaction with the subject-specific competencies	86	86	85	78	78	73
Learning and teaching methods	88	83	82	79	72	83
Well-balanced lessons	80	---	90	67	---	79
The support of positive social behaviour (child-raising effectiveness)	86	85	98	76	74	93
Individual pupil support	88	96	94	75	84	95
Assessment and evaluation	71	70	72	54	48	71

Table 3: ThüNIS results part 1

The examples illustrate that in the range of teaching and learning the school got higher results as well from the pupils as also from the parents than other schools in Thuringia. Pupils and parents have a positive attitude to the concept of teaching and learning at the ImPULS School.
The following results describe how effective pupil competence development at the ImPULS School is rated by pupils themselves, teachers and parents. Four competency areas related to the Thuringian Education Curriculum were taken as a basis. These are: expertise, method skills, social skills and self-competence. The aspect of satisfaction explains to what extent pupils have the feeling that they are supported in their development of self-competence at the school.

Area of school development	Agreement in % (ImPULS School in 2009)			Agreement in % (Thuringia)		
Degree of effectiveness	**Pupils**	**Parents**	**Teachers**	**Pupils**	**Parents**	**Teachers**
Expertise	78	---	73	68	---	75
Method skills	90	83	89	82	77	89
Social skills	89	88	83	79	74	85
Self-competence	81	81	88	74	63	80
Satisfaction	78	81	92	60	74	89

Table 4: ThüNIS results part 2

Regarding the factor degree of effectiveness, pupils and parents are more confident with the concept of the ImPULS School than other schools in Thuringia. In comparison with other pupils it can be seen that those of the ImPuls School have more the feeling that they are integrated in the development of their self concept. Another evaluation section of ThüNIS aims to determine school climate and school culture.

Areas of school development	Agreement in % (ImPULS School in 2009)			Agreement in % (Thuringia)		
School climate and culture	**Pupils**	**Parents**	**Teachers**	**Pupils**	**Parents**	**Teachers**
Learning climate in various learner groups (class lessons, single-age groups, mixed-age groups)	88	90	98	77	79	93
Friendly and secure atmosphere	85	93	96	69	78	84
Problem solving	82	---	100	72	---	96

Table 5: Additional ThüNIS results

The results reveal that, concerning school climate and culture the school also from pupils to parents and teachers is positively assessed. In all areas upraised for it, the school attains a higher value than the other schools in Thuringia.

4. CONCLUSION

To sum up, it can be pointed out that the ImPULS School presents a thoroughly consistent concept that meets every area of the OECD innovation term. This is demonstrated mainly by the school's success to manage the split between social and legal framework conditions, as well as being able to meet the requirements of a specific institutional ethos. In this context, it isn't surprising that classical elements can be found in the school structure. They haven't tried to forcefully replace a concept that has been developed over years by a supposedly new one. Instead, it grew from by the teachers' engagement right from the beginning. The innovations are carried by all parties who identify themselves with the school. It is important to mention that the school development process has been significantly promoted by the headmistress. She is one of the primary reasons for the school development mentioned in this report. Furthermore, the school administration is supported by a committed team that is embracing change. This team got the chance to experience success of the own concept. Therefore, a school development process took place that is characterized mainly by bottom-up processes. The school parties wouldn't rest on their laurels but promote further development processes by a sophisticated and comprehensive school development concept. The decisive advantage of this is that the school has successfully coped with changes in the society repeatedly.
In the sense of innovative learning environments, learning at the ImPULS School is characterized by responsibility and autonomy. Therefore the methods, for example the forms of assessment, are innovative and very profound. Learning diaries are a naturally form of documentation of one's own learning process, afterwards serving as a basis for feedback. Learning contracts are signed not only to involve the pupils but also the teachers. Regarding media in school, there is an orientation on the current culture but not to simply follow trends. This has been shown before when the school had to deal with the then-current media during the 1990s. Media education isn't seen as just a programme for a positive image but rather as a coherent concept for the education of open-minded people who are able to perform critical examinations of the media.

> *"Your school presented itself as an open and confident school. Especially remarkable is the relationship of teachers and students observed in all lessons. The arrangement of the school building as well as the dealing with one another shows that this school is a place of well-being"* (School Report Independent School ImPULS School Schmiedefeld, p. 7)

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